

Technical Report for

Aquaterra Technologies, Inc.

Sun-Marcus Hook Refinery, Philadelphia, PA

AOI-5

Accutest Job Number: JB39747

Sampling Date: 06/14/13

Report to:

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Total number of pages in report: 276



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.



Nancy Cole
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Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Aquaterra Technologies, Inc.

Job No: JB39747

Sun-Marcus Hook Refinery, Philadelphia, PA
Project No: AOI-5

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JB39747-1	06/14/13	08:00 LM	06/14/13	SO	Soil	AOI-5_MW-480_0-2'_61413
JB39747-2	06/14/13	09:00 LM	06/14/13	SO	Soil	AOI-5_MW-480_2-4'_61413

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Aquaterra Technologies, Inc.

Job No JB39747

Site: Sun-Marcus Hook Refinery, Philadelphia, PA

Report Date 7/17/2013 7:49:07 AM

On 06/14/2013, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 2 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB39747 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: SO **Batch ID:** VE8984

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB39434-14MS, JB39434-14MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VE8986

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB39833-3MS, JB39833-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VV5856

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB39590-1MS, JB39590-2DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for Duplicate for Benzene are outside control limits for sample JB39590-2DUP. High RPD due to possible sample analyzed from different vials.

Extractables by GCMS By Method SW846 8270C

Matrix: SO **Batch ID:** M:OP33673

- The data for SW846 8270C meets quality control requirements.
- JB39747-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39747-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39747-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846 8011

Matrix: SO **Batch ID:** M:OP33671

- The data for SW846 8011 meets quality control requirements.
- JB39747-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39747-1: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO	Batch ID: M:MP21207
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- The data for SW846 6010C meets quality control requirements.
- JB39747-2 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39747-1 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO	Batch ID: M:GN43311
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- The data for SM21 2540 B MOD. meets quality control requirements.
- JB39747-2 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB39747-1 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest’s Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover



SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest New Jersey

Job No JB39747

Site: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Report Date 7/17/2013 3:03:21 PM

2 Sample(s) were collected on 06/14/2013 and were received at Accutest of NJ on 06/14/2013, at Accutest of NE on 06/18/2013 properly preserved, at 1 Deg. C and intact. These Samples received an Accutest job number of JB39747. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Extractables by GCMS By Method SW846 8270C

Matrix SO	Batch ID: OP33673
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) MC21890-1MS, MC21890-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB39747-2 for Nitrobenzene-d5: Outside control limits due to dilution.
- OP33673-MSD for internal standards: Outside control limits. Individual spike recoveries within acceptance limits.
- OP33673-MB has internal standard outside control limits. Results confirmed by reanalysis.

Volatiles by GC By Method SW846 8011

Matrix SO	Batch ID: OP33671
------------------	--------------------------

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) JB39439-1MS, JB39439-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- OP33671-MS/MSD for Bromofluorobenzene (S): Outside control limits due to possible matrix interference.
- JB39747-1,2 for Bromofluorobenzene (S): Outside control limits due to possible matrix interference.

Metals By Method SW846 6010C

Matrix SO	Batch ID: MP21207
------------------	--------------------------

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC21882-15MSD, MC21882-15MS, MC21882-15SDL were used as the QC samples for metals.
- RPD(s) for Serial Dilution for Lead are outside control limits for sample MP21207-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Wet Chemistry By Method SM21 2540 B MOD.

Matrix SO	Batch ID: GN43311
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- Sample(s) MC21877-1DUP were used as the QC samples for Solids, Percent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report (JB39747).

Summary of Hits

Job Number: JB39747
Account: Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA
Collected: 06/14/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JB39747-1 AOI-5_MW-480_0-2' _61413

Benzene	0.0124	0.00088	0.00010	mg/kg	SW846 8260B
Toluene	0.00043 J	0.00088	0.000093	mg/kg	SW846 8260B
Ethylbenzene	0.0140	0.00088	0.00023	mg/kg	SW846 8260B
Xylene (total)	0.0227	0.00088	0.00012	mg/kg	SW846 8260B
Isopropylbenzene	0.00070 J	0.0044	0.000065	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene	0.0118	0.0044	0.00018	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene	0.0019 J	0.0044	0.00014	mg/kg	SW846 8260B
Anthracene ^a	0.0493 J	0.11	0.013	mg/kg	SW846 8270C
Benzo(a)anthracene ^a	0.194	0.11	0.014	mg/kg	SW846 8270C
Benzo(a)pyrene ^a	0.190	0.11	0.012	mg/kg	SW846 8270C
Benzo(b)fluoranthene ^a	0.157	0.11	0.014	mg/kg	SW846 8270C
Benzo(g,h,i)perylene ^a	0.134	0.11	0.011	mg/kg	SW846 8270C
Chrysene ^a	0.202	0.11	0.014	mg/kg	SW846 8270C
Naphthalene ^a	0.132	0.11	0.018	mg/kg	SW846 8270C
Phenanthrene ^a	0.188	0.11	0.015	mg/kg	SW846 8270C
Pyrene ^a	0.324	0.11	0.013	mg/kg	SW846 8270C
Lead ^a	58.6	0.84	0.14	mg/kg	SW846 6010C

JB39747-2 AOI-5_MW-480_2-4' _61413

Benzene	120	1.2	0.14	mg/kg	SW846 8260B
Toluene	2.33	1.2	0.12	mg/kg	SW846 8260B
Ethylbenzene	208	1.2	0.31	mg/kg	SW846 8260B
Xylene (total)	318	1.2	0.16	mg/kg	SW846 8260B
Isopropylbenzene	24.8	5.8	0.087	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene	345	58	2.4	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene	59.8	5.8	0.19	mg/kg	SW846 8260B
Anthracene ^a	23.7	4.0	0.48	mg/kg	SW846 8270C
Benzo(a)anthracene ^a	9.27	4.0	0.51	mg/kg	SW846 8270C
Benzo(a)pyrene ^a	5.90	4.0	0.43	mg/kg	SW846 8270C
Benzo(b)fluoranthene ^a	3.06 J	4.0	0.50	mg/kg	SW846 8270C
Benzo(g,h,i)perylene ^a	4.10	4.0	0.40	mg/kg	SW846 8270C
Chrysene ^a	18.1	4.0	0.49	mg/kg	SW846 8270C
Fluorene ^a	71.6	4.0	0.53	mg/kg	SW846 8270C
Naphthalene ^a	358	16	2.5	mg/kg	SW846 8270C
Phenanthrene ^a	155	4.0	0.54	mg/kg	SW846 8270C
Pyrene ^a	45.4	4.0	0.46	mg/kg	SW846 8270C
Lead ^a	138	1.2	0.20	mg/kg	SW846 6010C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI-5_MW-480_0-2'_61413	Date Sampled:	06/14/13
Lab Sample ID:	JB39747-1	Date Received:	06/14/13
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8260B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V135702.D	1	06/17/13	DFT	n/a	n/a	VV5856
Run #2							

Run #	Initial Weight
Run #1	6.5 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0124	0.00088	0.00010	mg/kg	
108-88-3	Toluene	0.00043	0.00088	0.000093	mg/kg	J
100-41-4	Ethylbenzene	0.0140	0.00088	0.00023	mg/kg	
1330-20-7	Xylene (total)	0.0227	0.00088	0.00012	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00088	0.00021	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00088	0.00012	mg/kg	
98-82-8	Isopropylbenzene	0.00070	0.0044	0.000065	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	0.0118	0.0044	0.00018	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	0.0019	0.0044	0.00014	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		65-131%
17060-07-0	1,2-Dichloroethane-D4	82%		70-121%
2037-26-5	Toluene-D8	104%		80-128%
460-00-4	4-Bromofluorobenzene	97%		67-131%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI-5_MW-480_0-2'_61413	Date Sampled:	06/14/13
Lab Sample ID:	JB39747-1	Date Received:	06/14/13
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	W13332.D	1	06/26/13	AMA	06/19/13	M:OP33673	M:MSW609
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.5 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.0493	0.11	0.013	mg/kg	J
56-55-3	Benzo(a)anthracene	0.194	0.11	0.014	mg/kg	
50-32-8	Benzo(a)pyrene	0.190	0.11	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.157	0.11	0.014	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.134	0.11	0.011	mg/kg	
218-01-9	Chrysene	0.202	0.11	0.014	mg/kg	
86-73-7	Fluorene	ND	0.11	0.015	mg/kg	
91-20-3	Naphthalene	0.132	0.11	0.018	mg/kg	
85-01-8	Phenanthrene	0.188	0.11	0.015	mg/kg	
129-00-0	Pyrene	0.324	0.11	0.013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	106%		30-130%
321-60-8	2-Fluorobiphenyl	83%		30-130%
1718-51-0	Terphenyl-d14	84%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI-5_MW-480_0-2'_61413	Date Sampled:	06/14/13
Lab Sample ID:	JB39747-1	Date Received:	06/14/13
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8011 SW846 3550B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BB48739.D	1	06/19/13	AMA	06/18/13	M:OP33671	M:GBB2907
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0028	0.0011	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	156%		61-167%		
460-00-4	Bromofluorobenzene (S)	171% ^b		61-167%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AOI-5_MW-480_0-2'_61413	Date Sampled: 06/14/13
Lab Sample ID: JB39747-1	Date Received: 06/14/13
Matrix: SO - Soil	Percent Solids: 87.3
Project: Sun-Marcus Hook Refinery, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Lead ^a	58.6	0.84	0.14	mg/kg	1	06/19/13	06/19/13	AMA	SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15773

(2) Prep QC Batch: M:MP21207

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.1
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Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI-5_MW-480_2-4'_61413	Date Sampled:	06/14/13
Lab Sample ID:	JB39747-2	Date Received:	06/14/13
Matrix:	SO - Soil	Percent Solids:	60.6
Method:	SW846 8260B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E204484.D	1	06/20/13	OTR	n/a	n/a	VE8986
Run #2	E204433.D	1	06/19/13	OTR	n/a	n/a	VE8984

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.1 g	10.0 ml	20.0 ul
Run #2	4.1 g	10.0 ml	2.0 ul

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	120	1.2	0.14	mg/kg	
108-88-3	Toluene	2.33	1.2	0.12	mg/kg	
100-41-4	Ethylbenzene	208	1.2	0.31	mg/kg	
1330-20-7	Xylene (total)	318	1.2	0.16	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.27	mg/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.16	mg/kg	
98-82-8	Isopropylbenzene	24.8	5.8	0.087	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	345 ^a	58	2.4	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	59.8	5.8	0.19	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	84%	83%	65-131%
17060-07-0	1,2-Dichloroethane-D4	85%	87%	70-121%
2037-26-5	Toluene-D8	98%	97%	80-128%
460-00-4	4-Bromofluorobenzene	97%	90%	67-131%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI-5_MW-480_2-4'_61413	Date Sampled:	06/14/13
Lab Sample ID:	JB39747-2	Date Received:	06/14/13
Matrix:	SO - Soil	Percent Solids:	60.6
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	W13333.D	5	06/26/13	AMA	06/19/13	M:OP33673	M:MSW609
Run #2 ^a	W13941.D	20	07/16/13	AMA	06/19/13	M:OP33673	M:MSW632

Run #	Initial Weight	Final Volume
Run #1	20.8 g	5.0 ml
Run #2	20.8 g	5.0 ml

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	23.7	4.0	0.48	mg/kg	
56-55-3	Benzo(a)anthracene	9.27	4.0	0.51	mg/kg	
50-32-8	Benzo(a)pyrene	5.90	4.0	0.43	mg/kg	
205-99-2	Benzo(b)fluoranthene	3.06	4.0	0.50	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	4.10	4.0	0.40	mg/kg	
218-01-9	Chrysene	18.1	4.0	0.49	mg/kg	
86-73-7	Fluorene	71.6	4.0	0.53	mg/kg	
91-20-3	Naphthalene	358 ^b	16	2.5	mg/kg	
85-01-8	Phenanthrene	155	4.0	0.54	mg/kg	
129-00-0	Pyrene	45.4	4.0	0.46	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	377% ^c	60%	30-130%
321-60-8	2-Fluorobiphenyl	87%	79%	30-130%
1718-51-0	Terphenyl-d14	83%	97%	30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Result is from Run# 2

(c) Outside control limits due to dilution.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI-5_MW-480_2-4'_61413	Date Sampled:	06/14/13
Lab Sample ID:	JB39747-2	Date Received:	06/14/13
Matrix:	SO - Soil	Percent Solids:	60.6
Method:	SW846 8011 SW846 3550B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BB48740.D	1	06/19/13	AMA	06/18/13	M:OP33671	M:GBB2907
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.4 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0041	0.0016	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	240% ^b		61-167%		
460-00-4	Bromofluorobenzene (S)	183% ^b		61-167%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AOI-5_MW-480_2-4'_61413	Date Sampled: 06/14/13
Lab Sample ID: JB39747-2	Date Received: 06/14/13
Matrix: SO - Soil	Percent Solids: 60.6
Project: Sun-Marcus Hook Refinery, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	138	1.2	0.20	mg/kg	1	06/19/13	06/19/13 AMA	SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15773

(2) Prep QC Batch: M:MP21207

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.2
 4

Misc. Forms

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB39747 Client: _____ Project: _____

Date / Time Received: 6/14/2013 Delivery Method: _____ Airbill #s: _____

Cooler Temps (Initial/Adjusted): #1: (2/2); 0

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

5.1
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Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB39747

Sun-Marcus Hook Refinery, Philadelphia, PA
 Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB39747-1 Collected: 14-JUN-13 08:00 By: LM Received: 14-JUN-13 By: AS						
AOI-5_MW-480_0-2'_61413						
JB39747-1	SW846 8260B	17-JUN-13 20:23	DFT			V8260SL
JB39747-1	SM21 2540 B MOD.	19-JUN-13	AMA			%SOL
JB39747-1	SW846 8011	19-JUN-13 19:38	AMA	18-JUN-13	AMA	V8011EDB
JB39747-1	SW846 6010C	19-JUN-13 21:37	AMA	19-JUN-13	AMA	PB
JB39747-1	SW846 8270C	26-JUN-13 09:06	AMA	19-JUN-13	AMA	B8270SL
JB39747-2 Collected: 14-JUN-13 09:00 By: LM Received: 14-JUN-13 By: AS						
AOI-5_MW-480_2-4'_61413						
JB39747-2	SM21 2540 B MOD.	19-JUN-13	AMA			%SOL
JB39747-2	SW846 8260B	19-JUN-13 04:29	OTR			V8260SL
JB39747-2	SW846 8011	19-JUN-13 20:06	AMA	18-JUN-13	AMA	V8011EDB
JB39747-2	SW846 6010C	19-JUN-13 21:42	AMA	19-JUN-13	AMA	PB
JB39747-2	SW846 8260B	20-JUN-13 06:16	OTR			V8260SL
JB39747-2	SW846 8270C	26-JUN-13 09:29	AMA	19-JUN-13	AMA	B8270SL
JB39747-2	SW846 8270C	16-JUL-13 16:36	AMA	19-JUN-13	AMA	B8270SL

5.2
5

Accutest Internal Chain of Custody

Job Number: JB39747
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA
Received: 06/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB39747-1.1	Secured Storage	Robert Lofrano	06/17/13 13:57	Retrieve from Storage
JB39747-1.1	Robert Lofrano		06/17/13 13:59	Subcontract
JB39747-1.2	Secured Storage	Robert Lofrano	06/17/13 13:57	Retrieve from Storage
JB39747-1.2	Robert Lofrano		06/17/13 13:59	Subcontract
JB39747-1.5	Secured Storage	Thien Nguyen	06/17/13 17:09	Retrieve from Storage
JB39747-1.5	Thien Nguyen	GCMSV	06/17/13 17:09	Load on Instrument
JB39747-1.5	GCMSV	Thien Nguyen	06/19/13 11:34	Unload from Instrument
JB39747-1.5	Thien Nguyen	Secured Storage	06/19/13 11:34	Return to Storage
JB39747-2.1	Secured Storage	Robert Lofrano	06/17/13 13:57	Retrieve from Storage
JB39747-2.1	Robert Lofrano		06/17/13 13:59	Subcontract
JB39747-2.2	Secured Storage	Robert Lofrano	06/17/13 13:57	Retrieve from Storage
JB39747-2.2	Robert Lofrano		06/17/13 13:59	Subcontract
JB39747-2.3	Secured Storage	Oksana Treglazova	06/18/13 15:35	Retrieve from Storage
JB39747-2.3	Oksana Treglazova	Secured Storage	06/18/13 15:35	Return to Storage
JB39747-2.3	Secured Storage	Oksana Treglazova	06/19/13 15:58	Retrieve from Storage
JB39747-2.3	Oksana Treglazova	Secured Storage	06/19/13 15:58	Return to Storage

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GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV5856-MB	V135693.D	1	06/17/13	DFT	n/a	n/a	VV5856

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.12	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.14	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.26	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.074	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/kg	
108-88-3	Toluene	ND	1.0	0.11	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.21	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.16	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.14	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	101%	65-131%
17060-07-0	1,2-Dichloroethane-D4	84%	70-121%
2037-26-5	Toluene-D8	104%	80-128%
460-00-4	4-Bromofluorobenzene	96%	67-131%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JB39747

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE8984-MB	E204423.D	1	06/18/13	OTR	n/a	n/a	VE8984

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-2

CAS No.	Compound	Result	RL	MDL	Units	Q
95-63-6	1,2,4-Trimethylbenzene	ND	250	10	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	82%	65-131%
17060-07-0	1,2-Dichloroethane-D4	86%	70-121%
2037-26-5	Toluene-D8	96%	80-128%
460-00-4	4-Bromofluorobenzene	91%	67-131%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JB39747

Account: AQTPAW Aquaterra Technologies, Inc.

Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE8986-MB	E204469.D	1	06/19/13	OTR	n/a	n/a	VE8986

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	6.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	6.8	ug/kg	
100-41-4	Ethylbenzene	ND	50	13	ug/kg	
98-82-8	Isopropylbenzene	ND	250	3.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	12	ug/kg	
108-88-3	Toluene	ND	50	5.3	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	8.0	ug/kg	
1330-20-7	Xylene (total)	ND	50	7.0	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	83%	65-131%
17060-07-0	1,2-Dichloroethane-D4	86%	70-121%
2037-26-5	Toluene-D8	96%	80-128%
460-00-4	4-Bromofluorobenzene	89%	67-131%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV5856-BS	V135694.D	1	06/17/13	DFT	n/a	n/a	VV5856

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	48.0	96	79-121
107-06-2	1,2-Dichloroethane	50	44.7	89	73-132
100-41-4	Ethylbenzene	50	46.3	93	78-119
98-82-8	Isopropylbenzene	50	44.3	89	75-122
1634-04-4	Methyl Tert Butyl Ether	100	94.9	95	73-122
108-88-3	Toluene	50	49.4	99	78-121
95-63-6	1,2,4-Trimethylbenzene	50	45.3	91	76-121
108-67-8	1,3,5-Trimethylbenzene	50	44.8	90	74-121
1330-20-7	Xylene (total)	150	144	96	79-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	65-131%
17060-07-0	1,2-Dichloroethane-D4	88%	70-121%
2037-26-5	Toluene-D8	104%	80-128%
460-00-4	4-Bromofluorobenzene	103%	67-131%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE8984-BS	E204424.D	1	06/18/13	OTR	n/a	n/a	VE8984

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
95-63-6	1,2,4-Trimethylbenzene	2500	2410	96	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	87%	65-131%
17060-07-0	1,2-Dichloroethane-D4	84%	70-121%
2037-26-5	Toluene-D8	96%	80-128%
460-00-4	4-Bromofluorobenzene	92%	67-131%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE8986-BS	E204470.D	1	06/19/13	OTR	n/a	n/a	VE8986

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2460	98	79-121
107-06-2	1,2-Dichloroethane	2500	2370	95	73-132
100-41-4	Ethylbenzene	2500	2420	97	78-119
98-82-8	Isopropylbenzene	2500	2470	99	75-122
1634-04-4	Methyl Tert Butyl Ether	5000	4880	98	73-122
108-88-3	Toluene	2500	2450	98	78-121
108-67-8	1,3,5-Trimethylbenzene	2500	2390	96	74-121
1330-20-7	Xylene (total)	7500	7390	99	79-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	88%	65-131%
17060-07-0	1,2-Dichloroethane-D4	83%	70-121%
2037-26-5	Toluene-D8	96%	80-128%
460-00-4	4-Bromofluorobenzene	92%	67-131%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB39590-1MS	V135698.D	1	06/17/13	DFT	n/a	n/a	VV5856
JB39590-1	V135697.D	1	06/17/13	DFT	n/a	n/a	VV5856

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-1

CAS No.	Compound	JB39590-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	0.18	J	36.6	32.3	88	47-130
107-06-2	1,2-Dichloroethane	ND		36.6	28.4	78	46-135
100-41-4	Ethylbenzene	0.27	J	36.6	26.4	71	30-139
98-82-8	Isopropylbenzene	ND		36.6	22.2	61	30-140
1634-04-4	Methyl Tert Butyl Ether	ND		36.6	28.8	79	50-127
108-88-3	Toluene	ND		36.6	30.6	84	38-136
95-63-6	1,2,4-Trimethylbenzene	0.29	J	36.6	20.5	55	20-145
108-67-8	1,3,5-Trimethylbenzene	ND		36.6	20.0	55	24-142
1330-20-7	Xylene (total)	1.1		110	80.3	72	31-140

CAS No.	Surrogate Recoveries	MS	JB39590-1	Limits
1868-53-7	Dibromofluoromethane	98%	103%	65-131%
17060-07-0	1,2-Dichloroethane-D4	77%	86%	70-121%
2037-26-5	Toluene-D8	102%	103%	80-128%
460-00-4	4-Bromofluorobenzene	98%	92%	67-131%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB39434-14MS	E204425.D	1	06/19/13	OTR	n/a	n/a	VE8984
JB39434-14MSD	E204426.D	1	06/19/13	OTR	n/a	n/a	VE8984
JB39434-14	E204428.D	1	06/19/13	OTR	n/a	n/a	VE8984

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-2

CAS No.	Compound	JB39434-14 ug/kg	Spike Q	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
95-63-6	1,2,4-Trimethylbenzene	ND	6580	6420	98	6470	98	1	20-145/28

CAS No.	Surrogate Recoveries	MS	MSD	JB39434-14	Limits
1868-53-7	Dibromofluoromethane	86%	86%	82%	65-131%
17060-07-0	1,2-Dichloroethane-D4	84%	84%	87%	70-121%
2037-26-5	Toluene-D8	96%	97%	96%	80-128%
460-00-4	4-Bromofluorobenzene	90%	92%	91%	67-131%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB39833-3MS	E204471.D	1	06/19/13	OTR	n/a	n/a	VE8986
JB39833-3MSD	E204472.D	1	06/20/13	OTR	n/a	n/a	VE8986
JB39833-3	E204474.D	1	06/20/13	OTR	n/a	n/a	VE8986

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-2

CAS No.	Compound	JB39833-3 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	3570	3370	94	3510	98	4	47-130/22
107-06-2	1,2-Dichloroethane	ND	3570	3690	103	3760	105	2	46-135/21
100-41-4	Ethylbenzene	ND	3570	3300	92	3400	95	3	30-139/25
98-82-8	Isopropylbenzene	ND	3570	3180	89	3320	93	4	30-140/27
1634-04-4	Methyl Tert Butyl Ether	ND	3570	3950	111	3970	111	1	50-127/21
108-88-3	Toluene	ND	3570	3380	95	3480	97	3	38-136/24
108-67-8	1,3,5-Trimethylbenzene	ND	3570	3290	92	3410	96	4	24-142/28
1330-20-7	Xylene (total)	ND	10700	10400	97	10600	99	2	31-140/26

CAS No.	Surrogate Recoveries	MS	MSD	JB39833-3	Limits
1868-53-7	Dibromofluoromethane	86%	86%	85%	65-131%
17060-07-0	1,2-Dichloroethane-D4	84%	85%	88%	70-121%
2037-26-5	Toluene-D8	96%	95%	96%	80-128%
460-00-4	4-Bromofluorobenzene	91%	91%	90%	67-131%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB39590-2DUP	V135700.D	1	06/17/13	DFT	n/a	n/a	VV5856
JB39590-2	V135701.D	1	06/17/13	DFT	n/a	n/a	VV5856

The QC reported here applies to the following samples:

Method: SW846 8260B

JB39747-1

CAS No.	Compound	JB39590-2 ug/kg	DUP Q	ug/kg	Q	RPD	Limits
71-43-2	Benzene	0.48	J	0.39	J	21* a	20
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	19
98-82-8	Isopropylbenzene	ND		ND		nc	15
1634-04-4	Methyl Tert Butyl Ether	6.8		5.9		14	16
108-88-3	Toluene	ND		ND		nc	24
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	10
1330-20-7	Xylene (total)	ND		ND		nc	24

CAS No.	Surrogate Recoveries	DUP	JB39590-2	Limits
1868-53-7	Dibromofluoromethane	103%	103%	65-131%
17060-07-0	1,2-Dichloroethane-D4	86%	83%	70-121%
2037-26-5	Toluene-D8	104%	105%	80-128%
460-00-4	4-Bromofluorobenzene	98%	96%	67-131%

(a) High RPD due to possible sample analyzed from different vials.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	VE8959-BFB	Injection Date:	06/03/13
Lab File ID:	E203868.D	Injection Time:	08:51
Instrument ID:	GCMSE		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	10874	17.7	Pass
75	30.0 - 60.0% of mass 95	28973	47.2	Pass
95	Base peak, 100% relative abundance	61445	100.0	Pass
96	5.0 - 9.0% of mass 95	4093	6.66	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	55701	90.7	Pass
175	5.0 - 9.0% of mass 174	4307	7.01 (7.73) ^a	Pass
176	95.0 - 101.0% of mass 174	54797	89.2 (98.4) ^a	Pass
177	5.0 - 9.0% of mass 176	3733	6.08 (6.81) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8959-IC8959	E203869.D	06/03/13	09:51	01:00	Initial cal 0.5
VE8959-IC8959	E203871.D	06/03/13	10:51	02:00	Initial cal 2
VE8959-IC8959	E203872.D	06/03/13	11:22	02:31	Initial cal 5
VE8959-IC8959	E203873.D	06/03/13	11:52	03:01	Initial cal 10
VE8959-IC8959	E203874.D	06/03/13	12:22	03:31	Initial cal 20
VE8959-ICC8959	E203875.D	06/03/13	12:53	04:02	Initial cal 50
VE8959-IC8959	E203876.D	06/03/13	13:23	04:32	Initial cal 100
VE8959-IC8959	E203877.D	06/03/13	13:53	05:02	Initial cal 200
VE8959-IC8959	E203880.D	06/03/13	15:24	06:33	Initial cal 1
VE8959-ICV8959	E203881.D	06/03/13	16:11	07:20	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8984-BFB	Injection Date: 06/18/13
Lab File ID: E204420.D	Injection Time: 21:56
Instrument ID: GCMSE	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	11386	17.4	Pass
75	30.0 - 60.0% of mass 95	30090	45.9	Pass
95	Base peak, 100% relative abundance	65597	100.0	Pass
96	5.0 - 9.0% of mass 95	4365	6.65	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	58813	89.7	Pass
175	5.0 - 9.0% of mass 174	4463	6.80 (7.59) ^a	Pass
176	95.0 - 101.0% of mass 174	57269	87.3 (97.4) ^a	Pass
177	5.0 - 9.0% of mass 176	3857	5.88 (6.73) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8984-CC8959	E204421.D	06/18/13	22:26	00:30	Continuing cal 50
VE8984-MB	E204423.D	06/18/13	23:26	01:30	Method Blank
VE8984-BS	E204424.D	06/18/13	23:56	02:00	Blank Spike
JB39434-14MS	E204425.D	06/19/13	00:27	02:31	Matrix Spike
JB39434-14MSD	E204426.D	06/19/13	00:57	03:01	Matrix Spike Duplicate
JB39434-14	E204428.D	06/19/13	01:57	04:01	(used for QC only; not part of job JB39747)
ZZZZZZ	E204429.D	06/19/13	02:28	04:32	(unrelated sample)
ZZZZZZ	E204430.D	06/19/13	02:58	05:02	(unrelated sample)
ZZZZZZ	E204431.D	06/19/13	03:28	05:32	(unrelated sample)
ZZZZZZ	E204432.D	06/19/13	03:59	06:03	(unrelated sample)
JB39747-2	E204433.D	06/19/13	04:29	06:33	AOI-5_MW-480_2-4'_61413
ZZZZZZ	E204435.D	06/19/13	05:30	07:34	(unrelated sample)
ZZZZZZ	E204436.D	06/19/13	06:00	08:04	(unrelated sample)
ZZZZZZ	E204437.D	06/19/13	06:30	08:34	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8986-BFB	Injection Date: 06/19/13
Lab File ID: E204466.D	Injection Time: 21:13
Instrument ID: GCMSE	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	10678	16.8	Pass
75	30.0 - 60.0% of mass 95	29714	46.8	Pass
95	Base peak, 100% relative abundance	63520	100.0	Pass
96	5.0 - 9.0% of mass 95	4496	7.08	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	57320	90.2	Pass
175	5.0 - 9.0% of mass 174	4534	7.14 (7.91) ^a	Pass
176	95.0 - 101.0% of mass 174	55965	88.1 (97.6) ^a	Pass
177	5.0 - 9.0% of mass 176	3677	5.79 (6.57) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8986-CC8959	E204467.D	06/19/13	21:43	00:30	Continuing cal 50
VE8986-MB	E204469.D	06/19/13	22:44	01:31	Method Blank
VE8986-BS	E204470.D	06/19/13	23:14	02:01	Blank Spike
JB39833-3MS	E204471.D	06/19/13	23:44	02:31	Matrix Spike
JB39833-3MSD	E204472.D	06/20/13	00:14	03:01	Matrix Spike Duplicate
JB39833-3	E204474.D	06/20/13	01:14	04:01	(used for QC only; not part of job JB39747)
ZZZZZZ	E204475.D	06/20/13	01:44	04:31	(unrelated sample)
ZZZZZZ	E204476.D	06/20/13	02:14	05:01	(unrelated sample)
ZZZZZZ	E204478.D	06/20/13	03:14	06:01	(unrelated sample)
ZZZZZZ	E204479.D	06/20/13	03:45	06:32	(unrelated sample)
ZZZZZZ	E204480.D	06/20/13	04:15	07:02	(unrelated sample)
JB39747-2	E204484.D	06/20/13	06:16	09:03	AOI-5_MW-480_2-4'_61413

Instrument Performance Check (BFB)

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	VV5841-BFB	Injection Date:	06/04/13
Lab File ID:	V135310.D	Injection Time:	13:18
Instrument ID:	GCMSV		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	7557	17.9	Pass
75	30.0 - 60.0% of mass 95	19581	46.3	Pass
95	Base peak, 100% relative abundance	42285	100.0	Pass
96	5.0 - 9.0% of mass 95	3004	7.10	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	36989	87.5	Pass
175	5.0 - 9.0% of mass 174	2797	6.61 (7.56) ^a	Pass
176	95.0 - 101.0% of mass 174	35674	84.4 (96.4) ^a	Pass
177	5.0 - 9.0% of mass 176	2285	5.40 (6.41) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VV5841-IC5841	V135312.D	06/04/13	14:49	01:31	Initial cal 1
VV5841-IC5841	V135313.D	06/04/13	15:20	02:02	Initial cal 2
VV5841-IC5841	V135314.D	06/04/13	15:51	02:33	Initial cal 5
VV5841-IC5841	V135315.D	06/04/13	16:22	03:04	Initial cal 10
VV5841-IC5841	V135316.D	06/04/13	16:53	03:35	Initial cal 20
VV5841-ICC5841	V135317.D	06/04/13	17:24	04:06	Initial cal 50
VV5841-IC5841	V135318.D	06/04/13	17:55	04:37	Initial cal 100
VV5841-IC5841	V135319.D	06/04/13	18:38	05:20	Initial cal 200
VV5841-ICV5841	V135322.D	06/04/13	20:14	06:56	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	VV5856-BFB	Injection Date:	06/17/13
Lab File ID:	V135690.D	Injection Time:	12:56
Instrument ID:	GCMSV		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	6844	16.1	Pass
75	30.0 - 60.0% of mass 95	19576	46.0	Pass
95	Base peak, 100% relative abundance	42561	100.0	Pass
96	5.0 - 9.0% of mass 95	3037	7.14	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	41857	98.3	Pass
175	5.0 - 9.0% of mass 174	3081	7.24 (7.36) ^a	Pass
176	95.0 - 101.0% of mass 174	39806	93.5 (95.1) ^a	Pass
177	5.0 - 9.0% of mass 176	2786	6.55 (7.00) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VV5856-CC5841	V135691.D	06/17/13	14:22	01:26	Continuing cal 20
VV5856-MB	V135693.D	06/17/13	15:35	02:39	Method Blank
VV5856-BS	V135694.D	06/17/13	16:16	03:20	Blank Spike
ZZZZZZ	V135696.D	06/17/13	17:19	04:23	(unrelated sample)
JB39590-1	V135697.D	06/17/13	17:50	04:54	(used for QC only; not part of job JB39747)
JB39590-1MS	V135698.D	06/17/13	18:20	05:24	Matrix Spike
JB39590-2DUP	V135700.D	06/17/13	19:22	06:26	Duplicate
JB39590-2	V135701.D	06/17/13	19:53	06:57	(used for QC only; not part of job JB39747)
JB39747-1	V135702.D	06/17/13	20:23	07:27	AOI-5_MW-480_0-2'_61413
ZZZZZZ	V135703.D	06/17/13	20:54	07:58	(unrelated sample)
ZZZZZZ	V135704.D	06/17/13	21:25	08:29	(unrelated sample)
ZZZZZZ	V135705.D	06/17/13	21:56	09:00	(unrelated sample)
ZZZZZZ	V135706.D	06/17/13	22:27	09:31	(unrelated sample)
ZZZZZZ	V135707.D	06/17/13	22:57	10:01	(unrelated sample)
ZZZZZZ	V135708.D	06/17/13	23:28	10:32	(unrelated sample)
ZZZZZZ	V135709.D	06/17/13	23:59	11:03	(unrelated sample)
ZZZZZZ	V135710.D	06/18/13	00:30	11:34	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	VE8984-CC8959	Injection Date:	06/18/13
Lab File ID:	E204421.D	Injection Time:	22:26
Instrument ID:	GCMSE	Method:	SW846 8260B

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	115021	7.65	196969	9.87	278260	10.78	262026	14.11	143886	16.68
Upper Limit ^a	230042	8.15	393938	10.37	556520	11.28	524052	14.61	287772	17.18
Lower Limit ^b	57511	7.15	98485	9.37	139130	10.28	131013	13.61	71943	16.18

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
VE8984-MB	103843	7.65	206654	9.86	284301	10.78	263101	14.11	150170	16.68
VE8984-BS	115610	7.65	193703	9.86	275838	10.78	257450	14.11	142317	16.68
JB39434-14MS	97968	7.64	186380	9.86	260478	10.78	246392	14.11	137259	16.68
JB39434-14MSD	99035	7.65	188569	9.86	265063	10.78	251972	14.11	139807	16.68
JB39434-14	105477	7.65	202981	9.86	279921	10.78	261686	14.11	148520	16.68
ZZZZZZ	113284	7.66	203671	9.86	280738	10.78	261990	14.11	149751	16.68
ZZZZZZ	108854	7.67	197042	9.86	269019	10.78	248019	14.11	136283	16.68
ZZZZZZ	114614	7.67	198017	9.86	266694	10.78	241942	14.11	132400	16.68
ZZZZZZ	108879	7.66	207166	9.86	287935	10.78	268828	14.11	153533	16.68
JB39747-2	131483	7.65	209621	9.86	284225	10.78	263200	14.11	149186	16.68
ZZZZZZ	114562	7.67	207914	9.86	290041	10.78	258280	14.11	144539	16.68
ZZZZZZ	131538	7.67	167351	9.86	211982	10.78	201695	14.11	132583	16.68
ZZZZZZ	114007	7.67	198778	9.86	265605	10.78	219320	14.11	133634	16.68

- IS 1 = Tert Butyl Alcohol-D9
- IS 2 = Pentafluorobenzene
- IS 3 = 1,4-Difluorobenzene
- IS 4 = Chlorobenzene-D5
- IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

6.7.1
6

Volatile Internal Standard Area Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	VE8986-CC8959	Injection Date:	06/19/13
Lab File ID:	E204467.D	Injection Time:	21:43
Instrument ID:	GCMSE	Method:	SW846 8260B

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	123583	7.67	194726	9.87	276277	10.78	259547	14.11	144753	16.68
Upper Limit ^a	247166	8.17	389452	10.37	552554	11.28	519094	14.61	289506	17.18
Lower Limit ^b	61792	7.17	97363	9.37	138139	10.28	129774	13.61	72377	16.18

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
VE8986-MB	98110	7.67	199263	9.86	274052	10.78	256215	14.11	147765	16.68
VE8986-BS	120151	7.66	189641	9.86	268738	10.78	252209	14.11	139595	16.68
JB39833-3MS	96785	7.66	185127	9.86	263820	10.78	244844	14.11	137013	16.68
JB39833-3MSD	97409	7.66	184955	9.86	264265	10.78	246207	14.11	136269	16.68
JB39833-3	109937	7.65	194238	9.86	272994	10.78	255039	14.11	146632	16.68
ZZZZZZ	106996	7.66	199924	9.86	276996	10.78	257120	14.11	147228	16.68
ZZZZZZ	106459	7.65	191313	9.86	262092	10.78	239305	14.11	138796	16.68
ZZZZZZ	104676	7.65	191062	9.86	259979	10.78	233491	14.11	133468	16.68
ZZZZZZ	106907	7.64	195528	9.86	268677	10.78	243914	14.11	141331	16.68
ZZZZZZ	126695	7.65	206810	9.86	278018	10.78	240229	14.11	138984	16.68
JB39747-2	120341	7.64	200827	9.86	269809	10.78	244591	14.11	139759	16.68

- IS 1 = Tert Butyl Alcohol-D9
- IS 2 = Pentafluorobenzene
- IS 3 = 1,4-Difluorobenzene
- IS 4 = Chlorobenzene-D5
- IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Internal Standard Area Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	VV5856-CC5841	Injection Date:	06/17/13
Lab File ID:	V135691.D	Injection Time:	14:22
Instrument ID:	GCMSV	Method:	SW846 8260B

	IS 1	RT	IS 2	RT	IS 3	RT	IS 4	RT	IS 5	RT
	AREA		AREA		AREA		AREA		AREA	
Check Std	37949	7.43	203019	9.65	283544	10.60	238923	14.00	116217	16.61
Upper Limit ^a	75898	7.93	406038	10.15	567088	11.10	477846	14.50	232434	17.11
Lower Limit ^b	18975	6.93	101510	9.15	141772	10.10	119462	13.50	58109	16.11

Lab	IS 1	RT	IS 2	RT	IS 3	RT	IS 4	RT	IS 5	RT
Sample ID	AREA		AREA		AREA		AREA		AREA	
VV5856-MB	30285	7.44	199429	9.66	277959	10.60	238735	14.00	108335	16.61
VV5856-BS	39718	7.44	213072	9.65	299905	10.60	256754	14.00	132589	16.61
ZZZZZZ	39582	7.44	217377	9.66	310467	10.60	266132	14.01	120356	16.61
JB39590-1	37562	7.45	229806	9.65	321755	10.60	267962	14.01	109154	16.61
JB39590-1MS	30442	7.44	232545	9.65	324628	10.60	264016	14.00	127492	16.61
JB39590-2DUP	44131	7.45	258133	9.66	365630	10.60	311752	14.01	145218	16.61
JB39590-2	36650	7.45	252343	9.66	355647	10.60	307265	14.01	142204	16.61
JB39747-1	37309	7.45	237576	9.66	332776	10.60	286978	14.01	132503	16.61
ZZZZZZ	37558	7.45	227560	9.66	324547	10.60	276235	14.01	123920	16.61
ZZZZZZ	36931	7.45	233707	9.66	328668	10.60	281246	14.01	126953	16.61
ZZZZZZ	27779	7.45	227141	9.65	317976	10.60	269343	14.01	117556	16.61
ZZZZZZ	37255	7.44	227060	9.65	324509	10.60	275127	14.00	123289	16.61
ZZZZZZ	39124	7.44	239646	9.65	341992	10.60	294894	14.00	130498	16.62
ZZZZZZ	41570	7.44	230306	9.66	332009	10.60	288630	14.00	127752	16.61
ZZZZZZ	36210	7.44	221173	9.66	311902	10.60	269030	14.01	119880	16.61
ZZZZZZ	41683	7.45	216084	9.65	313717	10.60	267889	14.01	118411	16.61

- IS 1 = Tert Butyl Alcohol-D9
- IS 2 = Pentafluorobenzene
- IS 3 = 1,4-Difluorobenzene
- IS 4 = Chlorobenzene-D5
- IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

6.7.3
6

Volatile Surrogate Recovery Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8260B	Matrix: SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB39747-1	V135702.D	103.0	82.0	104.0	97.0
JB39747-2	E204433.D	83.0	87.0	97.0	90.0
JB39747-2	E204484.D	84.0	85.0	98.0	97.0
JB39434-14MS	E204425.D	86.0	84.0	96.0	90.0
JB39434-14MSD	E204426.D	86.0	84.0	97.0	92.0
JB39590-1MS	V135698.D	98.0	77.0	102.0	98.0
JB39590-2DUP	V135700.D	103.0	86.0	104.0	98.0
JB39833-3MS	E204471.D	86.0	84.0	96.0	91.0
JB39833-3MSD	E204472.D	86.0	85.0	95.0	91.0
VE8984-BS	E204424.D	87.0	84.0	96.0	92.0
VE8984-MB	E204423.D	82.0	86.0	96.0	91.0
VE8986-BS	E204470.D	88.0	83.0	96.0	92.0
VE8986-MB	E204469.D	83.0	86.0	96.0	89.0
VV5856-BS	V135694.D	104.0	88.0	104.0	103.0
VV5856-MB	V135693.D	101.0	84.0	104.0	96.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	65-131%
S2 = 1,2-Dichloroethane-D4	70-121%
S3 = Toluene-D8	80-128%
S4 = 4-Bromofluorobenzene	67-131%

6.8.1
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Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICC8959
 Lab FileID: E203875.D

Response Factor Report MSE

Method : C:\MSDCHEM\1\METHODS\ME8959.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Tue Jun 04 11:33:14 2013
 Response via : Initial Calibration

Calibration Files

5 =E203872.D 2 =E203871.D 20 =E203874.D 50 =E203875.D
 100 =E203876.D 1 =E203880.D 200 =E203877.D 0.5 =E203869.D
 10 =E203873.D =

Compound	5	2	20	50	100	1	200	0.5	10	Avg	%RSD
1) Tert Butyl Alcohol-d9	-----ISTD-----										
2) 1,4-dioxane	0.086	0.090	0.103	0.096	0.096		0.107		0.094	0.096	7.60
3) tertiary butyl alcohol	1.328	1.292	1.376	1.278	1.256		1.354		1.258	1.306	3.64
4) ethanol										0.000#	-1.00
5) I pentafluorobenzene	-----ISTD-----										
6) freon 23										0.000#	-1.00
7) freon 115										0.000#	-1.00
8) freon 143a										0.000#	-1.00
9) freon 152a										0.000#	-1.00
10) chlorotrifluoroethene										0.000#	-1.00
11) chlorodifluoromethane	0.438	0.479	0.488	0.455	0.492	0.326	0.463		0.453	0.449	11.83
12) dichlorodifluoromethane	0.567		0.705	0.615	0.686		0.639		0.688	0.650	8.13
13) freon 114										0.000#	-1.00
14) freon 142b										0.000#	-1.00
15) chloromethane	0.857	1.070	0.911	0.832	0.905	0.905	0.820	1.008	0.892	0.911	8.89
16) vinyl chloride	0.823		0.913	0.828	0.895		0.828		0.911	0.866	5.10
17) 1,3-Butadiene										0.000#	-1.00
18) acetaldehyde										0.000#	-1.00
19) bromomethane	0.478	0.559	0.452	0.381	0.327	0.535	0.241		0.454	0.428	24.92
	----- Quadratic regression -----										
	Response Ratio = 0.00920 + 0.41205 *A + -0.04334 *A^2										
20) chloroethane	0.369	0.437	0.378	0.346	0.348	0.324	0.290		0.372	0.358	12.02
21) vinyl bromide										0.000#	-1.00

Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICC8959
 Lab FileID: E203875.D

22)	trichlorofluoromethane	0.729	0.915	0.810	0.744	0.773	0.730	0.710	0.651	0.815	0.764	9.94
23)	pentane	0.816	0.860	0.807	0.702	0.755	0.717	0.645	0.669	0.814	0.754	9.91
24)	ethyl ether	0.268	0.277	0.311	0.293	0.316	0.323	0.295	0.336	0.292	0.301	7.29
25)	freon 141b										0.000#	-1.00
26)	freon 123a										0.000#	-1.00
27)	freon 123										0.000#	-1.00
28)	2-chloropropane	0.767	0.733	0.893	0.793	0.843	0.826	0.788	0.735	0.834	0.801	6.59
29)	acrolein	0.104	0.100	0.115	0.104	0.074	0.106	0.096	0.113	0.111	0.103	11.93
30)	1,1-dichloroethene	0.423	0.404	0.485	0.426	0.462	0.378	0.418	0.322	0.475	0.421	12.07
31)	isopropyl alcohol										0.000#	-1.00
32)	acetone			0.047	0.047	0.051		0.047		0.040	0.046	8.01
33)	allyl chloride	0.845	0.997	1.021	0.802	0.879	1.174	0.786		0.908	0.926	14.10
34)	acetonitrile	0.024		0.029	0.031	0.031		0.029		0.030	0.029	9.02
35)	iodomethane	0.827	0.757	0.912	0.831	0.896	0.765	0.829	0.725	0.870	0.824	7.78
36)	iso-butyl alcohol										0.000#	-1.00
37)	carbon disulfide	1.441	1.460	1.648	1.471	1.516	1.474	1.418	1.612	1.595	1.515	5.47
38)	methylene chloride	0.512	0.482	0.554	0.504	0.539	0.544	0.493	0.488	0.534	0.517	5.21
39)	1-chloropropane	0.908	0.961	0.951	0.809	0.867		0.780		0.915	0.884	7.80
40)	methyl acetate	0.390	0.430	0.428	0.393	0.418	0.300	0.379		0.389	0.391	10.60
41)	methyl tert butyl ether	1.394	1.396	1.501	1.396	1.470	1.538	1.337	1.403	1.431	1.429	4.37
42)	trans-1,2-dichloroethene	0.451	0.461	0.510	0.454	0.478	0.464	0.432	0.374	0.505	0.459	8.85
43)	di-isopropyl ether	1.618	1.817	1.650	1.500	1.568	1.520	1.398	1.376	1.527	1.553	8.63
44)	ethyl tert-butyl ether	1.470	1.648	1.551	1.434	1.559	1.354	1.369	1.213	1.441	1.449	8.94
45)	2-butanone	0.038		0.066	0.066	0.070		0.065		0.061	0.061	18.86
		----- Linear regression ----- Coefficient = 0.9983										
		Response Ratio = 0.00015 + 0.06599 *A										
46)	1,1-dichloroethane	0.850	0.829	0.944	0.838	0.877	0.899	0.802	0.773	0.909	0.858	6.33
47)	chloroprene	0.640	0.685	0.707	0.634	0.678	0.517	0.616		0.652	0.641	9.14
48)	acrylonitrile	0.200	0.173	0.215	0.201	0.212	0.216	0.195		0.200	0.201	6.99
49)	vinyl acetate	0.074		0.087	0.087	0.092		0.086		0.080	0.084	7.70
50)	ethyl acetate											

6.9.1
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Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICC8959
 Lab FileID: E203875.D

51)	2,2-dichloropropane	0.063	0.057	0.077	0.072	0.075	0.068	0.069	0.069	10.13
52)	cis-1,2-dichloroethene	0.635	0.641	0.691	0.601	0.614	0.670	0.561	0.505	9.79
53)	methyl acrylate	0.520	0.512	0.559	0.503	0.523	0.526	0.475	0.501	4.75
54)	propionitrile	0.477	0.412	0.511	0.481	0.497	0.385	0.460	0.498	9.56
55)	bromochloromethane	0.080	0.070	0.084	0.078	0.081	0.088	0.072	0.080	7.16
56)	tetrahydrofuran	0.259	0.238	0.284	0.263	0.275	0.246	0.254	0.269	5.74
57)	chloroform	0.191	0.156	0.198	0.180	0.187	0.190	0.172	0.183	7.13
58)	t-butyl formate	0.821	0.804	0.898	0.814	0.842	0.923	0.770	0.796	5.95
59)	Iso-octane	0.378	0.391	0.404	0.390	0.430	0.310	0.395	0.359	9.30
60)	dibromofluoromethane (s)	1.555	1.805	1.678	1.483	1.547	1.368	1.332	1.624	10.12
61)	1,2-dichloroethane-d4 (s)	0.481	0.404	0.470	0.459	0.478	0.464	0.445	0.638	13.74
62)	freon 113	0.599	0.486	0.557	0.541	0.549	0.533	0.504	0.735	12.95
63)	methacrylonitrile	0.294	0.289	0.341	0.309	0.329	0.292	0.330	0.312	6.83
64)	1,1,1-trichloroethane	0.293	0.272	0.336	0.321	0.334	0.324	0.311	0.318	6.87
65)	tert-amyl methyl ether	0.631	0.633	0.732	0.669	0.704	0.629	0.657	0.527	9.12
66)	I 1,4-difluorobenzene	1.390	1.579	1.403	1.259	1.351	1.324	1.173	1.312	8.79
67)	Di-isobutylene	-----ISTD-----								0.000# -1.00
68)	tert amyl alcohol	0.017	0.011	0.018	0.017	0.016	0.014	0.016	0.016	14.72
69)	epichlorohydrin	0.040	0.041	0.043	0.038	0.040	0.037	0.038	0.040	4.84
70)	n-butyl alcohol	0.012	0.012	0.013	0.012	0.013	0.011	0.011	0.012	7.72
71)	tert-amyl ethyl ether	0.496	0.429	0.522	0.474	0.503	0.550	0.453	0.470	7.98
72)	carbon tetrachloride	0.400	0.394	0.462	0.409	0.433	0.396	0.399	0.336	8.72
73)	1,1-dichloropropene	0.412	0.406	0.473	0.427	0.444	0.419	0.410	0.347	8.66
74)	hexane	0.370	0.437	0.423	0.375	0.404	0.328	0.354	0.397	9.34
75)	benzene	1.296	1.297	1.398	1.234	1.273	1.430	1.146	1.306	6.51
76)	heptane	0.231	0.245	0.263	0.243	0.250	0.155	0.230	0.246	14.26
77)	isopropyl acetate	0.744	0.746	0.764	0.638	0.671	0.654	0.598	0.706	8.60
78)	1,2-dichloroethane	0.451	0.436	0.479	0.439	0.452	0.469	0.419	0.408	5.08
79)	ethyl acrylate	0.395	0.331	0.443	0.413	0.438	0.324	0.405	0.395	11.21
80)	trichloroethene									

6.9.1
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Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICC8959
 Lab FileID: E203875.D

81)	2-nitropropane	0.323	0.321	0.367	0.330	0.343	0.314	0.313	0.274	0.353	0.327	8.27	
82)	2-chloroethyl vinyl ether										0.000#	-1.00	
83)	methylcyclohexane	0.219	0.226	0.225	0.208	0.200	0.176	0.192		0.197	0.205	8.57	
84)	methyl methacrylate	0.532	0.610	0.579	0.497	0.515	0.439	0.451		0.557	0.523	11.39	
85)	1,2-dichloropropane	0.340	0.335	0.378	0.344	0.357	0.313	0.323		0.350	0.343	5.93	
86)	dibromomethane	0.352	0.353	0.374	0.335	0.346	0.347	0.317		0.353	0.347	4.71	
87)	bromodichloromethane	0.213	0.205	0.230	0.214	0.221	0.220	0.207		0.213	0.215	3.76	
88)	cis-1,3-dichloropropene	0.444	0.415	0.485	0.445	0.467	0.466	0.437	0.431	0.455	0.449	4.70	
89)	toluene-d8 (s)	0.573	0.557	0.627	0.570	0.600	0.559	0.554	0.466	0.591	0.566	7.86	
90)	4-methyl-2-pentanone	1.368	1.159	1.332	1.223	1.240	1.190	1.102		1.296	1.239	7.25	
91)	toluene	0.151	0.125	0.163	0.150	0.154	0.154	0.141		0.150	0.148	7.66	
92)	3-methyl-1-butanol	0.840	0.860	0.908	0.797	0.832	0.903	0.760	0.846	0.873	0.847	5.61	
93)	trans-1,3-dichloropropene	0.020	0.020	0.021	0.019	0.019	0.018	0.016		0.019	0.019	8.23	
94)	ethyl methacrylate	0.511	0.492	0.570	0.525	0.550	0.517	0.504	0.434	0.538	0.516	7.55	
95)	1,1,2-trichloroethane	0.443	0.399	0.497	0.462	0.487	0.428	0.444		0.448	0.451	6.92	
96)	2-hexanone	0.269	0.276	0.296	0.267	0.278	0.288	0.256	0.245	0.277	0.273	5.69	
		0.128	0.106	0.144	0.140	0.149		0.136		0.129	0.133	10.67	
97)	I chlorobenzene-d5	-----ISTD-----											
98)	cyclohexanone	0.028	0.032	0.021	0.019	0.019		0.015		0.023	0.022	26.05	
		----- Quadratic regression -----								Coefficient = 0.9992			
		Response Ratio = 0.00314 + 0.02148 *A + -0.00017 *A^2											
99)	tetrachloroethene	0.418	0.445	0.464	0.403	0.411	0.415	0.373	0.406	0.473	0.423	7.48	
100)	1,3-dichloropropane	0.593	0.554	0.619	0.569	0.572	0.642	0.525	0.566	0.602	0.583	6.08	
101)	butyl acetate	0.240	0.261	0.258	0.238	0.245	0.194	0.225		0.233	0.237	8.92	
102)	3,3-dimethyl-1-butanol	0.048	0.048	0.048	0.044	0.044	0.048	0.035		0.043	0.045	9.68	
103)	dibromochloromethane	0.391	0.373	0.424	0.396	0.409	0.404	0.386	0.400	0.397	0.398	3.60	
104)	1,2-dibromoethane	0.367	0.325	0.388	0.363	0.375	0.388	0.348	0.296	0.371	0.358	8.48	
105)	n-butyl ether										0.000#	-1.00	
106)	chlorobenzene	0.988	1.001	1.059	0.963	0.994	1.103	0.905	1.022	1.014	1.005	5.55	
107)	1,1,1,2-tetrachloroethane	0.362	0.351	0.381	0.351	0.358	0.398	0.337	0.340	0.367	0.361	5.37	
108)	ethylbenzene	1.634	1.626	1.749	1.546	1.552	1.774	1.397	1.736	1.718	1.637	7.51	

Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICC8959
 Lab FileID: E203875.D

109)	m,p-xylene	0.645	0.645	0.696	0.616	0.624	0.700	0.567	0.683	0.682	0.651	6.74
110)	o-xylene	0.660	0.635	0.713	0.639	0.643	0.698	0.589	0.715	0.694	0.665	6.42
111)	butyl acrylate										0.000#	-1.00
112)	styrene	1.063	1.006	1.164	1.060	1.058	1.067	0.967	0.908	1.104	1.044	7.20
113)	bromofom	0.279	0.262	0.304	0.301	0.312	0.288	0.296	0.279	0.279	0.289	5.46
114)	I 1,4-dichlorobenzene-d	-----ISTD-----										
115)	isopropylbenzene	3.051	3.073	3.456	3.037	3.075	3.194	2.760	2.845	3.297	3.087	6.88
116)	4-bromofluorobenzene (s)	1.042	0.887	1.021	0.957	0.984	0.973	0.900		0.967	0.967	5.51
117)	bromobenzene	0.875	0.870	0.937	0.839	0.861	0.882	0.780	0.837	0.904	0.865	5.14
118)	1,1,2,2-tetrachloroethane	0.908	0.890	0.960	0.889	0.905	1.066	0.825		0.888	0.916	7.72
119)	trans-1,4-dichloro-2-butene	0.188		0.234	0.229	0.244		0.232		0.201	0.221	9.79
120)	1,2,3-trichloropropane	0.256	0.212	0.256	0.237	0.244	0.287	0.224		0.246	0.245	9.29
121)	n-propylbenzene	3.448	3.531	3.872	3.357	3.416	3.646	3.024	3.342	3.736	3.486	7.15
122)	p-ethyltoluene	3.221	2.318	3.270	2.952	2.962	3.526	2.700	3.413	2.944	3.034	12.33
123)	2-chlorotoluene	0.753	0.767	0.821	0.724	0.750	0.844	0.676	0.683	0.807	0.758	7.71
124)	4-chlorotoluene	2.230	2.208	2.471	2.204	2.273	2.515	2.037	2.371	2.331	2.294	6.42
125)	1,3,5-trimethylbenzene	2.536	2.718	2.800	2.420	2.471	2.884	2.126	2.860	2.726	2.616	9.50
126)	tert-butylbenzene	2.244	2.288	2.550	2.222	2.270	2.480	2.103	2.316	2.426	2.322	6.01
127)	pentachloroethane	0.535	0.481	0.549	0.512	0.522	0.574	0.501	0.535	0.516	0.525	5.18
128)	1,2,4-trimethylbenzene	2.591	2.602	2.873	2.518	2.566	2.827	2.325	3.031	2.738	2.675	7.98
129)	sec-butylbenzene	3.255	3.234	3.635	3.246	3.275	3.527	2.986	3.276	3.498	3.326	5.88
130)	1,3-dichlorobenzene	1.561	1.570	1.701	1.531	1.579	1.748	1.432	1.609	1.629	1.596	5.82
131)	p-isopropyltoluene	2.709	2.701	3.102	2.743	2.797	2.824	2.534	2.665	2.929	2.778	5.89
132)	1,4-dichlorobenzene	1.562	1.565	1.692	1.543	1.600	1.749	1.466	1.782	1.599	1.618	6.37
133)	benzyl chloride	1.568	1.653	1.692	1.603	1.661	1.480	1.510	1.328	1.511	1.556	7.30
134)	p-diethylbenzene	1.792	1.304	1.940	1.762	1.787	1.904	1.611	1.836	1.733	1.741	10.90
135)	1,2-dichlorobenzene	1.548	1.537	1.667	1.517	1.563	1.772	1.423	1.736	1.590	1.595	6.96
136)	n-butylbenzene	1.389	1.309	1.595	1.413	1.485	1.453	1.367	1.213	1.504	1.414	7.97
137)	1,2,4,5-tetramethylbenzene	2.831	2.248	3.097	2.828	2.779	3.225	2.514	2.862	2.731	2.791	10.33
138)	1,2-dibromo-3-chloropropane	0.147	0.141	0.172	0.166	0.175	0.160	0.167		0.161	0.161	7.42

6.9.1
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Initial Calibration Summary

Job Number: JB39747
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICC8959
Lab FileID: E203875.D

139)	1,3,5-trichlorobenzene	1.277	1.214	1.434	1.310	1.348	1.489	1.231	1.305	1.353	1.329	6.73
140)	1,2,4-trichlorobenzene	1.030	0.976	1.213	1.153	1.199	1.358	1.102	1.047	1.105	1.131	10.18
141)	hexachlorobutadiene	0.593	0.610	0.669	0.593	0.613	0.683	0.583	0.543	0.652	0.616	7.31
142)	naphthalene	2.178	2.023	2.479	2.381	2.470	3.114	2.256		2.241	2.393	13.76
143)	MMT										0.000#	-1.00
144)	1,2,3-trichlorobenzene	0.895	0.829	1.024	0.970	1.023	1.228	0.941	0.891	0.916	0.969	11.96
145)	hexachloroethane	0.483	0.435	0.552	0.516	0.541	0.497	0.525	0.428	0.508	0.499	8.69
146)	Cyclohexane	0.897	0.917	1.049	0.921	0.950	0.882	0.860	0.766	1.025	0.919	9.25
147)	ethyleinimine										0.000#	-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

ME8959.M

Tue Jun 11 18:07:27 2013

RPT1

6.9.1

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Initial Calibration Verification

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICV8959
 Lab FileID: E203881.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VE old data\E203881.D Vial: 14
 Acq On : 3 Jun 2013 4:11 pm Operator: Oksanat
 Sample : icv8959-50 Inst : MSE
 Misc : MS48940,VE8959,5,,100,5,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8959.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Tue Jun 11 18:05:22 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	Tert Butyl Alcohol-d9	1.000	1.000	0.0	100	0.00	7.65
2 M	1,4-dioxane	0.096	0.096	0.0	100	-0.01	11.50
3 M	tertiary butyl alcohol	1.306	1.505	-15.2	117	-0.01	7.76
4	ethanol			-----NA-----			
5 I	pentafluorobenzene	1.000	1.000	0.0	101	0.00	9.87
6	freon 23			-----NA-----			
7	freon 115			-----NA-----			
8	freon 143a			-----NA-----			
9	freon 152a			-----NA-----			
10 M	chlorotrifluoroethene			-----NA-----			
11 M	chlorodifluoromethane	0.449	0.530	-18.0	118	0.00	4.29
12 M	dichlorodifluoromethane	0.650	0.529	18.6	87	0.00	4.28
13	freon 114			-----NA-----			
14	freon 142b			-----NA-----			
15 M	chloromethane	0.911	0.769	15.6	93	0.00	4.63
16 M	vinyl chloride	0.866	0.694	19.9	85	0.00	4.89
17	1,3-Butadiene			-----NA-----			
18 M	acetaldehyde			-----NA-----			
		----- True	Calc.	% Drift	-----		
19 M	bromomethane	50.000	53.297	-6.6	106	0.00	5.55
		----- AvgRF	CCRF	% Dev	-----		
20 M	chloroethane	0.358	0.369	-3.1	108	0.00	5.73
21 M	vinyl bromide			-----NA-----			
22 M	trichlorofluoromethane	0.764	0.678	11.3	92	0.00	6.23
23 M	pentane	0.754	0.658	12.7	95	0.00	6.31
24 M	ethyl ether	0.301	0.302	-0.3	104	0.00	6.61
25	freon 141b			-----NA-----			
26	freon 123a			-----NA-----			
27	freon 123			-----NA-----			
28 m	2-chloropropane	0.801	0.812	-1.4	103	0.00	6.80
29 M	acrolein	0.103	0.116	-12.6	112	-0.01	6.81
30 M	1,1-dichloroethene	0.421	0.428	-1.7	102	0.00	7.04
31 M	isopropyl alcohol			-----NA-----			
32 M	acetone	0.046	0.051	-10.9	109	0.00	7.03
33 M	allyl chloride	0.926	0.783	15.4	99	0.00	7.54
34 M	acetonitrile	0.029	0.036	-24.1#	119	0.00	7.43
35 M	iodomethane	0.824	0.828	-0.5	101	0.00	7.31
36 M	iso-butyl alcohol			-----NA-----			
37 M	carbon disulfide	1.515	1.422	6.1	98	0.00	7.47

Initial Calibration Verification

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICV8959
 Lab FileID: E203881.D

		True	Calc.	% Drift			
38 M	methylene chloride	0.517	0.497	3.9	100	0.00	7.71
39 m	1-chloropropane	0.884	0.813	8.0	102	0.00	7.77
40 M	methyl acetate	0.391	0.415	-6.1	107	0.00	7.50
41 M	methyl tert butyl ether	1.429	1.349	5.6	98	0.00	8.06
42 M	trans-1,2-dichloroethene	0.459	0.436	5.0	97	0.00	8.11
43 M	di-isopropyl ether	1.553	1.593	-2.6	107	0.00	8.65
44 M	ethyl tert-butyl ether	1.449	1.414	2.4	100	0.00	9.11
----- True Calc. % Drift -----							
45 M	2-butanone	50.000	51.234	-2.5	103	0.00	9.30
----- AvgRF CCRF % Dev -----							
46 M	1,1-dichloroethane	0.858	0.843	1.7	102	0.00	8.64
47 M	chloroprene	0.641	0.675	-5.3	108	0.00	8.76
48 M	acrylonitrile	0.201	0.207	-3.0	104	0.00	7.97
49 M	vinyl acetate	0.084	0.097	-15.5	113	0.00	8.61
50 M	ethyl acetate	0.069	0.077	-11.6	107	0.00	9.33
51 M	2,2-dichloropropane	0.623	0.571	8.3	96	0.00	9.39
52 M	cis-1,2-dichloroethene	0.518	0.486	6.2	98	0.00	9.36
53 m	methyl acrylate	0.465	0.465	0.0	98	0.00	9.41
54 M	propionitrile	0.079	0.079	0.0	102	0.00	9.35
55 M	bromochloromethane	0.261	0.255	2.3	98	0.00	9.66
56 M	tetrahydrofuran	0.182	0.175	3.8	98	0.00	9.72
57 M	chloroform	0.837	0.798	4.7	99	0.00	9.71
58 m	t-butyl formate	0.382	0.340	11.0	88	0.00	9.76
59 M	Iso-octane	1.549	1.471	5.0	100	0.00	10.48
60 S	dibromofluoromethane (s)	0.476	0.419	12.0	92	0.00	9.90
61 S	1,2-dichloroethane-d4 (s)	0.561	0.497	11.4	93	0.00	10.32
62 M	freon 113	0.312	0.312	0.0	102	0.00	7.03
63 M	methacrylonitrile	0.314	0.315	-0.3	99	0.00	9.56
64 M	1,1,1-trichloroethane	0.653	0.651	0.3	98	0.00	10.01
65 M	tert-amyl methyl ether	1.349	1.271	5.8	102	0.00	10.47
66 I	1,4-difluorobenzene	1.000	1.000	0.0	101	0.00	10.78
67 M	Di-isobutylene			-----NA-----			
68 M	tert amyl alcohol	0.016	0.015	6.3	92	0.00	10.25
69 M	epichlorohydrin	0.040	0.039	2.5	103	0.00	12.02
70 M	n-butyl alcohol	0.012	0.012	0.0	98	0.00	10.86
71 M	tert-amyl ethyl ether	0.487	0.420	13.9	89	0.00	11.32
72 M	carbon tetrachloride	0.408	0.401	1.7	99	0.00	10.22
73 M	1,1-dichloropropene	0.422	0.391	7.3	92	0.00	10.18
74 M	hexane	0.386	0.457	-18.4	123	0.00	8.43
75 M	benzene	1.303	1.230	5.6	100	0.00	10.43
76 M	heptane	0.233	0.251	-7.7	104	0.00	10.64
77 M	isopropyl acetate	0.690	0.671	2.8	106	0.00	10.32
78 M	1,2-dichloroethane	0.446	0.433	2.9	99	0.00	10.41
79	ethyl acrylate	0.393	0.396	-0.8	96	0.00	11.11
80 M	trichloroethene	0.327	0.332	-1.5	101	0.00	11.15
81 M	2-nitropropane			-----NA-----			
82 M	2-chloroethyl vinyl ether	0.205	0.247	-20.3#	119	0.00	11.91
83 M	methylcyclohexane	0.523	0.559	-6.9	113	0.00	11.41
84 M	methyl methacrylate	0.343	0.355	-3.5	104	0.00	11.38
85 M	1,2-dichloropropane	0.347	0.332	4.3	99	0.00	11.39
86 M	dibromomethane	0.215	0.212	1.4	99	0.00	11.55
87 M	bromodichloromethane	0.449	0.443	1.3	100	0.00	11.67
88 M	cis-1,3-dichloropropene	0.566	0.523	7.6	92	0.00	12.15
89 S	toluene-d8 (s)	1.239	1.133	8.6	93	0.00	12.48
90 M	4-methyl-2-pentanone	0.148	0.148	0.0	99	0.00	12.23
91 M	toluene	0.847	0.790	6.7	100	0.00	12.56
92 M	3-methyl-1-butanol	0.019	0.018	5.3	95	0.00	12.24

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Initial Calibration Verification

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICV8959
 Lab FileID: E203881.D

93 M	trans-1,3-dichloropropene	0.516	0.521	-1.0	100	0.00	12.73
94 M	ethyl methacrylate	0.451	0.457	-1.3	100	0.00	12.73
95 M	1,1,2-trichloroethane	0.273	0.272	0.4	102	0.00	12.96
96 M	2-hexanone	0.133	0.140	-5.3	101	0.00	13.14
97 I	chlorobenzene-d5	1.000	1.000	0.0	101	0.00	14.11
	----- True	Calc.	% Drift	-----			
98 M	cyclohexanone	500.000	399.466	20.1#	87	0.00	15.31
	----- AvgRF	CCRF	% Dev	-----			
99 M	tetrachloroethene	0.423	0.405	4.3	101	0.00	13.21
100 M	1,3-dichloropropane	0.583	0.564	3.3	100	0.00	13.16
101 M	butyl acetate	0.237	0.249	-5.1	105	0.00	13.23
102 m	3,3-dimethyl-1-butanol	0.045	0.039	13.3	89	0.00	13.32
103 M	dibromochloromethane	0.398	0.398	0.0	101	0.00	13.46
104 M	1,2-dibromoethane	0.358	0.359	-0.3	99	0.00	13.62
105 M	n-butyl ether			-----NA-----			
106 M	chlorobenzene	1.005	0.967	3.8	101	0.00	14.15
107 M	1,1,1,2-tetrachloroethane	0.361	0.344	4.7	99	0.00	14.20
108 M	ethylbenzene	1.637	1.541	5.9	100	0.00	14.21
109 M	m,p-xylene	0.651	0.615	5.5	101	0.00	14.32
110 M	o-xylene	0.665	0.634	4.7	100	0.00	14.78
111 M	butyl acrylate			-----NA-----			
112 M	styrene	1.044	1.050	-0.6	100	0.00	14.79
113 M	bromoform	0.289	0.300	-3.8	100	0.00	15.07
114 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	16.68
115 M	isopropylbenzene	3.087	3.004	2.7	100	0.00	15.17
116 S	4-bromofluorobenzene (s)	0.967	0.886	8.4	93	0.00	15.38
117 M	bromobenzene	0.865	0.836	3.4	100	0.00	15.61
118 M	1,1,2,2-tetrachloroethane	0.916	0.869	5.1	98	0.00	15.46
119 M	trans-1,4-dichloro-2-bute	0.221	0.234	-5.9	103	0.00	15.51
120 M	1,2,3-trichloropropane	0.245	0.231	5.7	98	0.00	15.55
121 M	n-propylbenzene	3.486	3.433	1.5	103	0.00	15.62
122 M	p-ethyltoluene	3.034	2.756	9.2	94	0.00	15.73
123 M	2-chlorotoluene	0.758	0.732	3.4	102	0.00	15.78
124 M	4-chlorotoluene	2.294	2.188	4.6	100	0.00	15.89
125 M	1,3,5-trimethylbenzene	2.616	2.423	7.4	101	0.00	15.78
126 M	tert-butylbenzene	2.322	2.228	4.0	101	0.00	16.18
127 M	pentachloroethane	0.525	0.508	3.2	100	0.00	16.26
128 M	1,2,4-trimethylbenzene	2.675	2.571	3.9	103	0.00	16.22
129 M	sec-butylbenzene	3.326	3.236	2.7	101	0.00	16.42
130 M	1,3-dichlorobenzene	1.596	1.540	3.5	101	0.00	16.62
131 M	p-isopropyltoluene	2.778	2.848	-2.5	105	0.00	16.54
132 M	1,4-dichlorobenzene	1.618	1.541	4.8	101	0.00	16.71
133	benzyl chloride	1.556	1.584	-1.8	100	0.00	16.82
134 M	p-diethylbenzene	1.741	1.662	4.5	95	0.00	16.97
135 M	1,2-dichlorobenzene	1.595	1.526	4.3	101	0.00	17.14
136 M	n-butylbenzene	1.414	1.431	-1.2	102	0.00	17.00
137 M	1,2,4,5-tetramethylbenzen	2.791	2.682	3.9	96	0.00	17.83
138 M	1,2-dibromo-3-chloropropa	0.161	0.167	-3.7	101	0.00	17.96
139 m	1,3,5-trichlorobenzene	1.329	1.317	0.9	101	0.00	18.20
140 M	1,2,4-trichlorobenzene	1.131	1.155	-2.1	101	0.00	18.92
141 M	hexachlorobutadiene	0.616	0.590	4.2	100	0.00	19.06
142 M	naphthalene	2.393	2.389	0.2	101	0.00	19.22
143	MMT			-----NA-----			
144 M	1,2,3-trichlorobenzene	0.969	0.985	-1.7	102	0.00	19.50
145 M	hexachloroethane	0.499	0.502	-0.6	98	0.00	17.46
146 M	Cyclohexane	0.919	0.901	2.0	99	0.00	10.11

Initial Calibration Verification

Job Number: JB39747
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8959-ICV8959
Lab FileID: E203881.D

147 ethyleinimine -----NA-----

(#) = Out of Range SPC's out = 0 CCC's out = 0
E203875.D ME8959.M Tue Jun 11 18:09:17 2013 RPT1

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Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8984-CC8959
 Lab FileID: E204421.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E204421.D Vial: 28
 Acq On : 18 Jun 2013 10:26 pm Operator: Oksanat
 Sample : cc8959-50 Inst : MSE
 Misc : MS49927,VE8984,5,,100,5,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8959.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Tue Jun 18 15:53:12 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	Tert Butyl Alcohol-d9	1.000	1.000	0.0	117	0.00	7.65
2 M	1,4-dioxane	0.096	0.108	-12.5	132	-0.01	11.50
3 M	tertiary butyl alcohol	1.306	1.350	-3.4	124	0.00	7.77
4	ethanol			-----NA-----			
5 I	pentafluorobenzene	1.000	1.000	0.0	117	0.00	9.87
6	freon 23			-----NA-----			
7	freon 115			-----NA-----			
8	freon 143a			-----NA-----			
9	freon 152a			-----NA-----			
10 M	chlorotrifluoroethene			-----NA-----			
11 M	chlorodifluoromethane	0.449	0.469	-4.5	121	0.00	4.29
12 M	dichlorodifluoromethane	0.650	0.685	-5.4	130	0.00	4.28
13	freon 114			-----NA-----			
14	freon 142b			-----NA-----			
15 M	chloromethane	0.911	0.858	5.8	121	0.00	4.63
16 M	vinyl chloride	0.866	0.859	0.8	121	0.00	4.89
17	1,3-Butadiene			-----NA-----			
18 M	acetaldehyde			-----NA-----			
		True	Calc.	% Drift			
19 M	bromomethane	50.000	59.947	-19.9	136	0.00	5.55
		AvgRF	CCRF	% Dev			
20 M	chloroethane	0.358	0.376	-5.0	127	0.00	5.73
21 M	vinyl bromide			-----NA-----			
22 M	trichlorofluoromethane	0.764	0.787	-3.0	124	0.00	6.23
23 M	pentane			-----NA-----			
24 M	ethyl ether	0.301	0.343	-14.0	137	0.00	6.61
25	freon 141b			-----NA-----			
26	freon 123a			-----NA-----			
27	freon 123			-----NA-----			
28 m	2-chloropropane	0.801	0.866	-8.1	128	0.00	6.80
29 M	acrolein	0.103	0.119	-15.5	134	-0.01	6.81
30 M	1,1-dichloroethene	0.421	0.468	-11.2	129	0.00	7.05
31 M	isopropyl alcohol			-----NA-----			
32 M	acetone	0.046	0.055	-19.6	137	0.00	7.03
33 M	allyl chloride	0.926	0.819	11.6	119	0.00	7.54
34 M	acetonitrile	0.029	0.040	-37.9#	152	-0.01	7.43
35 M	iodomethane	0.824	0.921	-11.8	130	0.00	7.31
36 M	iso-butyl alcohol			-----NA-----			
37 M	carbon disulfide	1.515	1.558	-2.8	124	0.00	7.47

Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8984-CC8959
 Lab FileID: E204421.D

		True	Calc.	% Drift			
38 M	methylene chloride	0.517	0.551	-6.6	128	0.00	7.71
39 m	1-chloropropane	0.884	0.863	2.4	125	0.00	7.77
40 M	methyl acetate	0.391	0.432	-10.5	128	0.00	7.50
41 M	methyl tert butyl ether	1.429	1.558	-9.0	131	0.00	8.06
42 M	trans-1,2-dichloroethene	0.459	0.498	-8.5	128	0.00	8.11
43 M	di-isopropyl ether	1.553	1.627	-4.8	127	0.00	8.65
44 M	ethyl tert-butyl ether	1.449	1.634	-12.8	133	0.00	9.11
----- True Calc. % Drift -----							
45 M	2-butanone	50.000	49.846	0.3	116	0.00	9.29
----- AvgRF CCRF % Dev -----							
46 M	1,1-dichloroethane	0.858	0.911	-6.2	127	0.00	8.64
47 M	chloroprene	0.641	0.684	-6.7	126	0.00	8.76
48 M	acrylonitrile	0.201	0.223	-10.9	130	0.00	7.97
49 M	vinyl acetate	0.084	0.090	-7.1	122	0.00	8.61
50 M	ethyl acetate	0.069	0.078	-13.0	125	0.00	9.33
51 M	2,2-dichloropropane	0.623	0.592	5.0	115	0.00	9.39
52 M	cis-1,2-dichloroethene	0.518	0.540	-4.2	126	0.00	9.36
53 m	methyl acrylate	0.465	0.504	-8.4	123	0.00	9.41
54 M	propionitrile	0.079	0.086	-8.9	129	0.00	9.35
55 M	bromochloromethane	0.261	0.287	-10.0	128	0.00	9.66
56 M	tetrahydrofuran	0.182	0.198	-8.8	128	0.00	9.72
57 M	chloroform	0.837	0.862	-3.0	124	0.00	9.71
58 m	t-butyl formate	0.382	0.450	-17.8	135	0.00	9.76
59 M	Iso-octane	1.549	1.606	-3.7	127	0.00	10.48
60 S	dibromofluoromethane (s)	0.476	0.413	13.2	105	0.00	9.90
61 S	1,2-dichloroethane-d4 (s)	0.561	0.474	15.5	103	0.00	10.32
62 M	freon 113	0.312	0.335	-7.4	127	0.00	7.03
63 M	methacrylonitrile	0.314	0.348	-10.8	127	0.00	9.56
64 M	1,1,1-trichloroethane	0.653	0.711	-8.9	124	0.00	10.01
65 M	tert-amyl methyl ether	1.349	1.424	-5.6	132	0.00	10.47
66 I	1,4-difluorobenzene	1.000	1.000	0.0	114	0.00	10.78
67 M	Di-isobutylene			-----NA-----			
68 M	tert amyl alcohol	0.016	0.001#	93.8#	5#	0.02	10.28
69 M	epichlorohydrin	0.040	0.043	-7.5	129	0.00	12.02
70 M	n-butyl alcohol	0.012	0.014	-16.7	130	0.00	10.86
71 M	tert-amyl ethyl ether	0.487	0.001#	99.8#	0#	0.10	11.42
72 M	carbon tetrachloride	0.408	0.445	-9.1	124	0.00	10.23
73 M	1,1-dichloropropene	0.422	0.464	-10.0	124	0.00	10.18
74 M	hexane	0.386	0.420	-8.8	128	0.00	8.43
75 M	benzene	1.303	1.356	-4.1	125	0.00	10.43
76 M	heptane	0.233	0.266	-14.2	125	0.00	10.64
77 M	isopropyl acetate	0.690	0.690	0.0	123	0.00	10.32
78 M	1,2-dichloroethane	0.446	0.469	-5.2	122	0.00	10.41
79	ethyl acrylate			-----NA-----			
80 M	trichloroethene	0.327	0.362	-10.7	125	0.00	11.15
81 M	2-nitropropane			-----NA-----			
82 M	2-chloroethyl vinyl ether	0.205	0.237	-15.6	129	0.00	11.91
83 M	methylcyclohexane	0.523	0.570	-9.0	131	0.00	11.41
84 M	methyl methacrylate	0.343	0.387	-12.8	128	0.00	11.38
85 M	1,2-dichloropropane	0.347	0.383	-10.4	130	0.00	11.39
86 M	dibromomethane	0.215	0.235	-9.3	125	0.00	11.55
87 M	bromodichloromethane	0.449	0.491	-9.4	126	0.00	11.67
88 M	cis-1,3-dichloropropene	0.566	0.635	-12.2	127	0.00	12.15
89 S	toluene-d8 (s)	1.239	1.189	4.0	111	0.00	12.48
90 M	4-methyl-2-pentanone	0.148	0.168	-13.5	127	0.00	12.23
91 M	toluene	0.847	0.878	-3.7	126	0.00	12.56
92 M	3-methyl-1-butanol	0.019	0.020	-5.3	123	0.00	12.24

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Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8984-CC8959
 Lab FileID: E204421.D

93 M	trans-1,3-dichloropropene	0.516	0.570	-10.5	124	0.00	12.73
94 M	ethyl methacrylate	0.451	0.511	-13.3	126	0.00	12.73
95 M	1,1,2-trichloroethane	0.273	0.296	-8.4	126	0.00	12.96
96 M	2-hexanone	0.133	0.155	-16.5	126	0.00	13.14
97 I	chlorobenzene-d5	1.000	1.000	0.0	114	0.00	14.11
	----- True	Calc.	% Drift	-----			
98 M	cyclohexanone	500.000	525.768	-5.2	126	0.00	15.31
	----- AvgRF	CCRF	% Dev	-----			
99 M	tetrachloroethene	0.423	0.451	-6.6	127	0.00	13.21
100 M	1,3-dichloropropane	0.583	0.626	-7.4	125	0.00	13.16
101 M	butyl acetate	0.237	0.275	-16.0	131	0.00	13.23
102 m	3,3-dimethyl-1-butanol	0.045	0.048	-6.7	122	0.00	13.32
103 M	dibromochloromethane	0.398	0.443	-11.3	127	0.00	13.46
104 M	1,2-dibromoethane	0.358	0.400	-11.7	125	0.00	13.62
105 M	n-butyl ether			-----NA-----			
106 M	chlorobenzene	1.005	1.050	-4.5	124	0.00	14.15
107 M	1,1,1,2-tetrachloroethane	0.361	0.382	-5.8	124	0.00	14.20
108 M	ethylbenzene	1.637	1.684	-2.9	124	0.00	14.21
109 M	m,p-xylene	0.651	0.682	-4.8	126	0.00	14.32
110 M	o-xylene	0.665	0.708	-6.5	126	0.00	14.78
111 M	butyl acrylate			-----NA-----			
112 M	styrene	1.044	1.167	-11.8	125	0.00	14.79
113 M	bromoform	0.289	0.331	-14.5	125	0.00	15.07
114 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	116	0.00	16.68
115 M	isopropylbenzene	3.087	3.271	-6.0	125	0.00	15.17
116 S	4-bromofluorobenzene (s)	0.967	0.887	8.3	108	0.00	15.38
117 M	bromobenzene	0.865	0.904	-4.5	125	0.00	15.61
118 M	1,1,2,2-tetrachloroethane	0.916	0.950	-3.7	124	0.00	15.46
119 M	trans-1,4-dichloro-2-bute	0.221	0.251	-13.6	127	0.00	15.50
120 M	1,2,3-trichloropropane	0.245	0.253	-3.3	124	0.00	15.54
121 M	n-propylbenzene	3.486	3.588	-2.9	124	0.00	15.62
122 M	p-ethyltoluene			-----NA-----			
123 M	2-chlorotoluene	0.758	0.789	-4.1	127	0.00	15.78
124 M	4-chlorotoluene	2.294	2.394	-4.4	126	0.00	15.89
125 M	1,3,5-trimethylbenzene	2.616	2.694	-3.0	129	0.00	15.78
126 M	tert-butylbenzene	2.322	2.432	-4.7	127	0.00	16.18
127 M	pentachloroethane	0.525	0.557	-6.1	126	0.00	16.26
128 M	1,2,4-trimethylbenzene	2.675	2.760	-3.2	127	0.00	16.22
129 M	sec-butylbenzene	3.326	3.542	-6.5	127	0.00	16.42
130 M	1,3-dichlorobenzene	1.596	1.675	-4.9	127	0.00	16.62
131 M	p-isopropyltoluene	2.778	2.979	-7.2	126	0.00	16.54
132 M	1,4-dichlorobenzene	1.618	1.680	-3.8	127	0.00	16.71
133	benzyl chloride	1.556	1.638	-5.3	119	0.00	16.82
134 M	p-diethylbenzene			-----NA-----			
135 M	1,2-dichlorobenzene	1.595	1.681	-5.4	129	0.00	17.14
136 M	n-butylbenzene	1.414	1.557	-10.1	128	0.00	17.00
137 M	1,2,4,5-tetramethylbenzen			-----NA-----			
138 M	1,2-dibromo-3-chloropropa	0.161	0.184	-14.3	129	0.00	17.96
139 m	1,3,5-trichlorobenzene	1.329	1.386	-4.3	123	0.00	18.20
140 M	1,2,4-trichlorobenzene	1.131	1.213	-7.3	122	0.00	18.91
141 M	hexachlorobutadiene	0.616	0.635	-3.1	125	0.00	19.06
142 M	naphthalene	2.393	2.616	-9.3	128	0.00	19.22
143	MMT			-----NA-----			
144 M	1,2,3-trichlorobenzene	0.969	1.037	-7.0	124	0.00	19.50
145 M	hexachloroethane	0.499	0.565	-13.2	127	0.00	17.46
146 M	Cyclohexane	0.919	1.024	-11.4	129	0.00	10.12

Continuing Calibration Summary

Job Number: JB39747
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8984-CC8959
Lab FileID: E204421.D

147 ethyleinimine -----NA-----

(#) = Out of Range SPC's out = 0 CCC's out = 0
E203875.D ME8959.M Wed Jun 19 15:11:22 2013 RPT1

6.9.3
6

Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8986-CC8959
 Lab FileID: E204467.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E204467.D Vial: 29
 Acq On : 19 Jun 2013 9:43 pm Operator: Oksanat
 Sample : cc8959-50 Inst : MSE
 Misc : MS50130,VE8986,5,,100,5,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8959.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Tue Jun 18 15:53:12 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 Tert Butyl Alcohol-d9	1.000	1.000	0.0	126	0.02	7.67
2 M 1,4-dioxane	0.096	0.099	-3.1	130	0.00	11.52
3 M tertiary butyl alcohol	1.306	1.254	4.0	124	0.00	7.78
4 ethanol			-----NA-----			
5 I pentafluorobenzene	1.000	1.000	0.0	116	0.00	9.87
6 freon 23			-----NA-----			
7 freon 115			-----NA-----			
8 freon 143a			-----NA-----			
9 freon 152a			-----NA-----			
10 M chlorotrifluoroethene			-----NA-----			
11 M chlorodifluoromethane	0.449	0.459	-2.2	117	0.00	4.29
12 M dichlorodifluoromethane	0.650	0.695	-6.9	131	0.00	4.29
13 freon 114			-----NA-----			
14 freon 142b			-----NA-----			
15 M chloromethane	0.911	0.845	7.2	118	0.00	4.63
16 M vinyl chloride	0.866	0.857	1.0	120	0.00	4.89
17 1,3-Butadiene			-----NA-----			
18 M acetaldehyde			-----NA-----			
----- True Calc. % Drift -----						
19 M bromomethane	50.000	52.443	-4.9	120	0.00	5.55
----- AvgRF CCRF % Dev -----						
20 M chloroethane	0.358	0.349	2.5	117	0.00	5.73
21 M vinyl bromide			-----NA-----			
22 M trichlorofluoromethane	0.764	0.787	-3.0	122	0.00	6.23
23 M pentane			-----NA-----			
24 M ethyl ether	0.301	0.322	-7.0	127	0.00	6.61
25 freon 141b			-----NA-----			
26 freon 123a			-----NA-----			
27 freon 123			-----NA-----			
28 m 2-chloropropane	0.801	0.848	-5.9	124	0.00	6.80
29 M acrolein	0.103	0.123	-19.4	136	0.00	6.82
30 M 1,1-dichloroethene	0.421	0.460	-9.3	125	0.00	7.04
31 M isopropyl alcohol			-----NA-----			
32 M acetone	0.046	0.054	-17.4	133	0.01	7.04
33 M allyl chloride	0.926	0.854	7.8	123	0.00	7.53
34 M acetonitrile	0.029	0.037	-27.6#	138	0.00	7.45
35 M iodomethane	0.824	0.896	-8.7	125	0.00	7.31
36 M iso-butyl alcohol			-----NA-----			
37 M carbon disulfide	1.515	1.553	-2.5	122	0.00	7.47

Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8986-CC8959
 Lab FileID: E204467.D

		True	Calc.	% Drift			
38 M	methylene chloride	0.517	0.533	-3.1	122	0.00	7.71
39 m	1-chloropropane	0.884	0.880	0.5	126	0.00	7.77
40 M	methyl acetate	0.391	0.409	-4.6	120	0.00	7.50
41 M	methyl tert butyl ether	1.429	1.470	-2.9	122	0.00	8.06
42 M	trans-1,2-dichloroethene	0.459	0.484	-5.4	123	0.00	8.11
43 M	di-isopropyl ether	1.553	1.537	1.0	119	0.00	8.65
44 M	ethyl tert-butyl ether	1.449	1.533	-5.8	124	0.00	9.11
----- True Calc. % Drift -----							
45 M	2-butanone	50.000	52.690	-5.4	122	0.00	9.30
----- AvgRF CCRF % Dev -----							
46 M	1,1-dichloroethane	0.858	0.885	-3.1	122	0.00	8.64
47 M	chloroprene	0.641	0.660	-3.0	120	0.00	8.76
48 M	acrylonitrile	0.201	0.212	-5.5	122	0.00	7.97
49 M	vinyl acetate	0.084	0.085	-1.2	113	0.00	8.61
50 M	ethyl acetate	0.069	0.075	-8.7	120	0.00	9.33
51 M	2,2-dichloropropane	0.623	0.600	3.7	115	0.00	9.39
52 M	cis-1,2-dichloroethene	0.518	0.524	-1.2	121	0.00	9.36
53 m	methyl acrylate	0.465	0.481	-3.4	116	0.00	9.41
54 M	propionitrile	0.079	0.083	-5.1	122	0.00	9.36
55 M	bromochloromethane	0.261	0.275	-5.4	121	0.00	9.66
56 M	tetrahydrofuran	0.182	0.190	-4.4	121	0.00	9.73
57 M	chloroform	0.837	0.833	0.5	118	0.00	9.72
58 m	t-butyl formate	0.382	0.415	-8.6	123	0.00	9.76
59 M	Iso-octane	1.549	1.533	1.0	120	0.00	10.48
60 S	dibromofluoromethane (s)	0.476	0.413	13.2	104	0.00	9.90
61 S	1,2-dichloroethane-d4 (s)	0.561	0.476	15.2	102	0.00	10.32
62 M	freon 113	0.312	0.326	-4.5	122	0.00	7.03
63 M	methacrylonitrile	0.314	0.325	-3.5	117	0.00	9.56
64 M	1,1,1-trichloroethane	0.653	0.701	-7.4	121	0.00	10.00
65 M	tert-amyl methyl ether	1.349	1.348	0.1	124	0.00	10.47
66 I	1,4-difluorobenzene	1.000	1.000	0.0	113	0.00	10.78
67 M	Di-isobutylene			-----NA-----			
68 M	tert amyl alcohol			-----NA-----			
69 M	epichlorohydrin	0.040	0.042	-5.0	124	0.00	12.02
70 M	n-butyl alcohol	0.012	0.014	-16.7	130	0.00	10.88
71 M	tert-amyl ethyl ether			-----NA-----			
72 M	carbon tetrachloride	0.408	0.432	-5.9	120	0.00	10.23
73 M	1,1-dichloropropene	0.422	0.455	-7.8	121	0.00	10.18
74 M	hexane	0.386	0.406	-5.2	122	0.00	8.43
75 M	benzene	1.303	1.312	-0.7	120	0.00	10.43
76 M	heptane	0.233	0.255	-9.4	118	0.00	10.64
77 M	isopropyl acetate	0.690	0.649	5.9	115	0.00	10.32
78 M	1,2-dichloroethane	0.446	0.445	0.2	115	0.00	10.41
79	ethyl acrylate			-----NA-----			
80 M	trichloroethene	0.327	0.356	-8.9	122	0.00	11.15
81 M	2-nitropropane			-----NA-----			
82 M	2-chloroethyl vinyl ether	0.205	0.214	-4.4	116	0.00	11.91
83 M	methylcyclohexane	0.523	0.537	-2.7	122	0.00	11.41
84 M	methyl methacrylate	0.343	0.362	-5.5	119	0.00	11.38
85 M	1,2-dichloropropane	0.347	0.358	-3.2	121	0.00	11.38
86 M	dibromomethane	0.215	0.218	-1.4	115	0.00	11.55
87 M	bromodichloromethane	0.449	0.460	-2.4	117	0.00	11.67
88 M	cis-1,3-dichloropropene	0.566	0.597	-5.5	119	0.00	12.15
89 S	toluene-d8 (s)	1.239	1.185	4.4	110	0.00	12.48
90 M	4-methyl-2-pentanone	0.148	0.159	-7.4	120	0.00	12.23
91 M	toluene	0.847	0.851	-0.5	121	0.00	12.56
92 M	3-methyl-1-butanol	0.019	0.021	-10.5	127	0.00	12.25

6.9.4
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Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8986-CC8959
 Lab FileID: E204467.D

93 M	trans-1,3-dichloropropene	0.516	0.534	-3.5	115	0.00	12.73
94 M	ethyl methacrylate	0.451	0.477	-5.8	117	0.00	12.73
95 M	1,1,2-trichloroethane	0.273	0.272	0.4	115	0.00	12.96
96 M	2-hexanone	0.133	0.149	-12.0	121	0.00	13.14
97 I	chlorobenzene-d5	1.000	1.000	0.0	112	0.00	14.11
	----- True	Calc.	% Drift	-----			
98 M	cyclohexanone	500.000	471.270	5.7	113	0.00	15.31
	----- AvgRF	CCRF	% Dev	-----			
99 M	tetrachloroethene	0.423	0.439	-3.8	122	0.00	13.21
100 M	1,3-dichloropropane	0.583	0.582	0.2	115	0.00	13.16
101 M	butyl acetate	0.237	0.264	-11.4	125	0.00	13.23
102 m	3,3-dimethyl-1-butanol	0.045	0.050	-11.1	127	0.00	13.32
103 M	dibromochloromethane	0.398	0.417	-4.8	119	0.00	13.46
104 M	1,2-dibromoethane	0.358	0.375	-4.7	116	0.00	13.62
105 M	n-butyl ether			-----NA-----			
106 M	chlorobenzene	1.005	1.008	-0.3	118	0.00	14.15
107 M	1,1,1,2-tetrachloroethane	0.361	0.363	-0.6	116	0.00	14.20
108 M	ethylbenzene	1.637	1.636	0.1	119	0.00	14.21
109 M	m,p-xylene	0.651	0.659	-1.2	120	0.00	14.32
110 M	o-xylene	0.665	0.684	-2.9	120	0.00	14.78
111 M	butyl acrylate			-----NA-----			
112 M	styrene	1.044	1.129	-8.1	120	0.00	14.79
113 M	bromoform	0.289	0.312	-8.0	117	0.00	15.07
114 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	117	0.00	16.68
115 M	isopropylbenzene	3.087	3.155	-2.2	122	0.00	15.17
116 S	4-bromofluorobenzene (s)	0.967	0.883	8.7	108	0.00	15.38
117 M	bromobenzene	0.865	0.861	0.5	120	0.00	15.61
118 M	1,1,2,2-tetrachloroethane	0.916	0.885	3.4	116	0.00	15.46
119 M	trans-1,4-dichloro-2-bute	0.221	0.232	-5.0	118	0.00	15.51
120 M	1,2,3-trichloropropane	0.245	0.240	2.0	118	0.00	15.54
121 M	n-propylbenzene	3.486	3.456	0.9	120	0.00	15.62
122 M	p-ethyltoluene			-----NA-----			
123 M	2-chlorotoluene	0.758	0.752	0.8	121	0.00	15.78
124 M	4-chlorotoluene	2.294	2.292	0.1	122	0.00	15.89
125 M	1,3,5-trimethylbenzene	2.616	2.576	1.5	125	0.00	15.78
126 M	tert-butylbenzene	2.322	2.325	-0.1	122	0.00	16.18
127 M	pentachloroethane	0.525	0.525	0.0	120	0.00	16.26
128 M	1,2,4-trimethylbenzene	2.675	2.627	1.8	122	0.00	16.22
129 M	sec-butylbenzene	3.326	3.387	-1.8	122	0.00	16.41
130 M	1,3-dichlorobenzene	1.596	1.596	0.0	122	0.00	16.62
131 M	p-isopropyltoluene	2.778	2.851	-2.6	122	0.00	16.54
132 M	1,4-dichlorobenzene	1.618	1.600	1.1	121	0.00	16.71
133	benzyl chloride	1.556	1.560	-0.3	114	0.00	16.82
134 M	p-diethylbenzene			-----NA-----			
135 M	1,2-dichlorobenzene	1.595	1.573	1.4	121	0.00	17.14
136 M	n-butylbenzene	1.414	1.474	-4.2	122	0.00	17.00
137 M	1,2,4,5-tetramethylbenzen			-----NA-----			
138 M	1,2-dibromo-3-chloropropa	0.161	0.172	-6.8	121	0.00	17.96
139 m	1,3,5-trichlorobenzene	1.329	1.316	1.0	118	0.00	18.20
140 M	1,2,4-trichlorobenzene	1.131	1.128	0.3	114	0.00	18.91
141 M	hexachlorobutadiene	0.616	0.598	2.9	118	0.00	19.06
142 M	naphthalene	2.393	2.357	1.5	116	0.00	19.22
143	MMT			-----NA-----			
144 M	1,2,3-trichlorobenzene	0.969	0.930	4.0	112	0.00	19.50
145 M	hexachloroethane	0.499	0.535	-7.2	121	0.00	17.46
146 M	Cyclohexane	0.919	0.989	-7.6	126	0.00	10.11

6.9.4

6

Continuing Calibration Summary

Job Number: JB39747
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8986-CC8959
Lab FileID: E204467.D

147 ethyleinimine -----NA-----

(#) = Out of Range SPC's out = 0 CCC's out = 0
E203875.D ME8959.M Thu Jun 20 12:30:45 2013 RPT1

6.9.4
6

Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICC5841
 Lab FileID: V135317.D

Response Factor Report MSV

Method : C:\MSDCHEM\1\METHODS\MVS5841.M (RTE Integrator)
 Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Wed Jun 05 09:28:55 2013
 Response via : Initial Calibration

Calibration Files

1 =v135312.D 10 =v135315.D 100 =v135318.D 50 =v135317.D
 20 =v135316.D 200 =v135319.D 5 =v135314.D 2 =v135313.D
 = =

Compound	1	10	100	50	20	200	5	2	Avg	%RSD
1) I Tert Butyl Alcohol-d9 -----ISTD-----										
2) tertiary butyl alcohol	1.309	1.062	1.066	1.196	1.205	1.104	1.399		1.192	10.68
3) 1,4-dioxane	0.096	0.086	0.089	0.092	0.099	0.096			0.093	5.09
4) I pentafluorobenzene -----ISTD-----										
5) chlorodifluoromethane	0.631	0.475	0.514	0.498	0.511	0.580	0.569	0.593	0.546	9.95
6) dichlorodifluoromethane	0.604	0.633	0.618	0.608	0.634	0.677	0.654	0.668	0.637	4.31
7) chloromethane	1.043	0.759	0.775	0.757	0.747	0.846	0.803	0.832	0.820	11.81
8) vinyl chloride	0.855	0.801	0.802	0.770	0.781	0.876	0.791	0.835	0.814	4.61
9) bromomethane	0.354	0.339	0.339	0.343	0.372	0.362	0.359		0.353	3.59
10) chloroethane	0.356	0.325	0.324	0.320	0.321	0.347	0.345	0.330	0.334	4.12
11) trichlorofluoromethane	0.770	0.699	0.701	0.695	0.713	0.736	0.732	0.727	0.722	3.48
12) ethyl ether	0.197	0.142	0.150	0.154	0.153	0.167	0.168	0.161	0.162	10.30
13) 2-chloropropane	1.018	0.671	0.748	0.785	0.811	0.817	0.905	0.906	0.833	12.93
14) acrolein	0.034	0.036	0.036	0.036	0.034	0.040	0.034	0.039	0.036	6.09
15) freon 113	0.288	0.256	0.277	0.275	0.269	0.297	0.296	0.291	0.281	5.09
16) 1,1-dichloroethene	0.492	0.314	0.355	0.371	0.396	0.390	0.439	0.435	0.399	13.90
17) acetone	0.055	0.044	0.050	0.056	0.051	0.066			0.054	13.47
18) iso-butyl alcohol	0.011	0.011	0.012	0.011	0.013	0.012	0.012		0.012	5.74
19) allyl chloride	0.259	0.195	0.247	0.260	0.257	0.278	0.270	0.255	0.253	9.92
20) acetonitrile	0.103	0.080	0.087	0.090	0.091	0.095	0.094	0.093	0.091	7.52
21) iodomethane	0.653	0.536	0.603	0.624	0.638	0.665	0.664	0.665	0.631	7.07
22) carbon disulfide	1.702	1.208	1.356	1.403	1.461	1.494	1.586	1.560	1.471	10.35
23) methylene chloride										

Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICC5841
 Lab FileID: V135317.D

24)	1-chloropropane	0.323	0.337	0.348	0.357	0.368	0.385	0.425	0.363	9.38	
25)	methyl acetate	0.896	0.651	0.735	0.747	0.770	0.797	0.875	0.794	10.76	
26)	methyl tert butyl ether	0.125	0.141	0.145	0.156	0.152	0.122	0.125	0.138	10.04	
27)	trans-1,2-dichloroethene	0.752	0.655	0.730	0.749	0.744	0.810	0.748	0.747	6.06	
28)	di-isopropyl ether	0.467	0.352	0.388	0.397	0.413	0.422	0.447	0.419	9.61	
29)	2-butanone	1.310	1.143	1.230	1.236	1.192	1.319	1.249	1.242	4.63	
30)	1,1-dichloroethane	0.017	0.021	0.022	0.020	0.025			0.021	13.99	
31)	chloroprene	0.836	0.644	0.732	0.754	0.758	0.796	0.783	0.761	7.44	
32)	acrylonitrile	0.675	0.573	0.640	0.623	0.601	0.670	0.635	0.634	5.43	
33)	vinyl acetate	0.057	0.056	0.062	0.064	0.062	0.070	0.060	0.061	8.08	
34)	ethyl tert-butyl ether	0.027	0.037	0.035	0.034	0.041			0.035	14.03	
35)	ethyl acetate	1.039	0.950	1.039	1.040	1.001	1.127	1.020	1.027	4.92	
36)	2,2-dichloropropane	0.026	0.026	0.027	0.029	0.030	0.020		0.026	13.57	
37)	cis-1,2-dichloroethene	0.707	0.498	0.575	0.597	0.613	0.626	0.662	0.618	10.33	
38)	propionitrile	0.482	0.346	0.389	0.394	0.405	0.422	0.435	0.412	9.59	
39)	methyl acrylate	0.016	0.021	0.023	0.024	0.023	0.027	0.021	0.022	14.66	
		0.015	0.026	0.027	0.024	0.032	0.006		0.022	44.36	
		----- Linear regression ----- Coefficient = 0.9944									
		Response Ratio = -0.00446 + 0.03214 *A									
40)	methacrylonitrile	0.054	0.074	0.075	0.072	0.083	0.066		0.071	13.85	
41)	bromochloromethane	0.124	0.129	0.139	0.145	0.143	0.153	0.145	0.141	7.28	
42)	tetrahydrofuran	0.060	0.065	0.067	0.063	0.072	0.060		0.065	7.22	
43)	chloroform	0.800	0.574	0.610	0.637	0.640	0.669	0.687	0.663	10.20	
44)	tert-Butyl Formate	0.189	0.197	0.211	0.207	0.189	0.235	0.198	0.204	7.30	
45)	dibromofluoromethane (s)	0.360	0.310	0.307	0.311	0.300	0.330	0.306	0.320	6.42	
46)	1,2-dichloroethane-d4 (s)	0.318	0.284	0.279	0.287	0.277	0.302	0.279	0.295	6.79	
47)	1,1,1-trichloroethane	0.684	0.503	0.579	0.598	0.617	0.634	0.666	0.616	9.27	
48)	Cyclohexane	0.771	0.528	0.639	0.657	0.694	0.693	0.750	0.684	11.41	
49) I	1,4-difluorobenzene	-----ISTD-----									
50)	methylcyclohexane	0.539	0.477	0.522	0.512	0.513	0.550	0.557	0.529	5.46	
51)	epichlorohydrin	0.011	0.012	0.011	0.011	0.013	0.011	0.010	0.011	8.18	

Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICC5841
 Lab FileID: V135317.D

52)	n-butyl alcohol	0.004	0.004	0.004	0.004	0.005	0.003		0.004	12.62	
53)	carbon tetrachloride	0.424	0.318	0.376	0.379	0.395	0.409	0.435	0.425	0.395	9.66
54)	1,1-dichloropropene	0.502	0.349	0.410	0.420	0.442	0.448	0.468	0.462	0.438	10.52
55)	hexane	0.545	0.378	0.407	0.405	0.396	0.425	0.468	0.476	0.437	12.63
56)	2,2,4-Trimethylpentane	1.352	1.147	1.231	1.217	1.189	1.342	1.345	1.316	1.267	6.36
57)	benzene	1.387	1.011	1.125	1.155	1.148	1.233	1.244	1.279	1.198	9.48
58)	tert-amyl methyl ether	0.720	0.581	0.630	0.629	0.605	0.688	0.624	0.655	0.642	6.97
59)	heptane	0.313	0.229	0.243	0.245	0.246	0.267	0.270	0.262	0.259	9.88
60)	isopropyl acetate	0.040	0.035	0.036	0.037	0.036	0.039	0.037		0.037	4.40
61)	1,2-dichloroethane	0.272	0.223	0.247	0.254	0.246	0.268	0.249	0.256	0.252	6.04
62)	trichloroethene	0.339	0.244	0.277	0.283	0.289	0.302	0.311	0.289	0.292	9.43
63)	2-chloroethyl vinyl ether	0.036	0.048	0.045	0.041	0.060	0.036			0.044	20.16
	----- Linear regression -----									Coefficient = 0.9901	
	Response Ratio = -0.04608 + 0.06001 *A										
64)	methyl methacrylate	0.029	0.036	0.035	0.034	0.041				0.035	12.85
65)	1,2-dichloropropane	0.290	0.237	0.265	0.270	0.273	0.289	0.290	0.285	0.275	6.63
66)	dibromomethane	0.117	0.094	0.102	0.103	0.103	0.112	0.104	0.113	0.106	6.92
67)	bromodichloromethane	0.320	0.266	0.299	0.300	0.302	0.327	0.316	0.307	0.305	6.13
68)	2-nitropropane	0.038	0.040	0.040	0.040	0.044	0.035	0.038		0.039	6.92
69)	cis-1,3-dichloropropene	0.415	0.338	0.381	0.388	0.376	0.419	0.386	0.390	0.387	6.46
70)	toluene-d8 (s)	1.300	0.956	0.986	1.004	0.986	1.074	1.019	1.169	1.062	11.04
71)	4-methyl-2-pentanone	0.045	0.055	0.055	0.054	0.061	0.049	0.045		0.052	11.51
72)	toluene	0.870	0.616	0.689	0.708	0.724	0.765	0.769	0.783	0.740	10.14
73)	isoamyl alcohol	0.007	0.006	0.006	0.006	0.006	0.007	0.005	0.006	0.006	9.63
74)	trans-1,3-dichloropropene	0.295	0.264	0.299	0.302	0.294	0.331	0.295	0.305	0.298	6.09
75)	ethyl methacrylate	0.175	0.178	0.211	0.208	0.205	0.239	0.192	0.177	0.198	11.18
76)	1,1,2-trichloroethane	0.136	0.119	0.131	0.133	0.130	0.144	0.138	0.127	0.132	5.60
77)	2-hexanone	0.036	0.045	0.043	0.038	0.052	0.038			0.042	14.42
78)	I chlorobenzene-d5									-----ISTD-----	
79)	tetrachloroethene	0.472	0.331	0.377	0.399	0.409	0.420	0.445	0.442	0.412	10.70
80)	1,3-dichloropropane										

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Initial Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICC5841
 Lab FileID: V135317.D

	0.380	0.309	0.338	0.345	0.350	0.378	0.348	0.348		0.350	6.43
81)	butyl acetate										
	0.058	0.047	0.043	0.046	0.053	0.063	0.046			0.051	14.69
82)	3,3-Dimethyl-1-Butanol										
	0.015	0.012	0.012	0.012	0.014	0.012	0.012			0.013	8.75
83)	dibromochloromethane										
	0.267	0.205	0.236	0.243	0.236	0.264	0.256	0.243		0.244	8.06
84)	1,2-dibromoethane										
	0.158	0.159	0.177	0.181	0.175	0.195	0.179	0.185		0.176	7.20
85)	chlorobenzene										
	1.001	0.813	0.877	0.909	0.925	0.974	0.993	0.946		0.930	6.82
86)	1,1,1,2-tetrachloroethane										
	0.315	0.278	0.302	0.306	0.312	0.334	0.322	0.304		0.309	5.24
87)	ethylbenzene										
	1.995	1.524	1.678	1.731	1.766	1.877	1.882	1.797		1.781	8.08
88)	m,p-xylene										
	0.727	0.575	0.639	0.662	0.672	0.722	0.722	0.682		0.675	7.63
89)	o-xylene										
	0.654	0.529	0.608	0.621	0.627	0.681	0.668	0.645		0.629	7.51
90)	styrene										
	0.931	0.805	0.966	0.977	0.972	1.095	0.974	0.915		0.954	8.45
91)	bromoform										
	0.122	0.122	0.142	0.142	0.140	0.161	0.140	0.121		0.136	10.09
92)	cyclohexanone										
	0.008	0.008	0.009	0.009	0.009	0.009	0.009	0.009		0.009	6.33
93)	4-bromofluorobenzene (s)										
	0.412	0.399	0.413	0.394	0.440	0.481				0.423	7.66
94)	I 1,4-dichlorobenzene-d -----ISTD-----										
95)	isopropylbenzene										
	4.346	3.162	3.417	3.505	3.729	3.761	4.078	4.097		3.762	10.54
96)	1,1,2,2-tetrachloroethane										
	0.581	0.459	0.466	0.473	0.477	0.509	0.508	0.518		0.499	7.99
97)	trans-1,4-dichloro-2-butene										
	0.104	0.131	0.114	0.113	0.131	0.136	0.105			0.119	10.97
98)	1,2,3-trichloropropane										
	0.107	0.107	0.110	0.118	0.121	0.123	0.122			0.115	6.25
99)	bromobenzene										
	0.891	0.649	0.673	0.700	0.724	0.773	0.782	0.788		0.747	10.38
100)	n-propylbenzene										
	4.979	3.701	4.052	4.122	4.424	4.551	4.782	4.774		4.423	9.85
101)	2-chlorotoluene										
	0.945	0.733	0.763	0.785	0.821	0.854	0.904	0.889		0.837	8.84
102)	4-chlorotoluene										
	2.880	2.119	2.167	2.234	2.376	2.442	2.633	2.639		2.436	10.91
103)	1,3,5-trimethylbenzene										
	3.404	2.538	2.760	2.827	2.977	3.090	3.234	3.160		2.999	9.38
104)	tert-butylbenzene										
	3.165	2.320	2.536	2.559	2.751	2.792	3.011	2.998		2.767	10.31
105)	pentachloroethane										
	0.599	0.451	0.455	0.478	0.487	0.496	0.522	0.501		0.499	9.41
106)	1,2,4-trimethylbenzene										
	3.166	2.495	2.669	2.760	2.865	2.988	3.087	2.894		2.865	7.71
107)	sec-butylbenzene										
	4.543	3.594	3.919	3.997	4.227	4.352	4.579	4.420		4.204	8.14
108)	p-isopropyltoluene										
	3.551	2.789	3.077	3.148	3.319	3.464	3.524	3.309		3.273	7.90
109)	1,3-dichlorobenzene										
	1.835	1.327	1.375	1.414	1.473	1.550	1.597	1.590		1.520	10.62
110)	1,4-dichlorobenzene										

Initial Calibration Summary

Job Number: JB39747
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICC5841
Lab FileID: V135317.D

111)	1,2-dichlorobenzene	1.789	1.314	1.340	1.382	1.483	1.541	1.549	1.624	1.503	10.59
112)	Benzyl Chloride	1.381	1.177	1.215	1.247	1.287	1.352	1.381	1.379	1.302	6.32
113)	n-butylbenzene	0.888	0.762	0.798	0.809	0.801	0.904	0.793	0.860	0.827	6.12
114)	hexachloroethane	1.687	1.402	1.637	1.648	1.744	1.877	1.771	1.615	1.673	8.32
115)	1,2-dibromo-3-chloropropane	0.572	0.504	0.544	0.548	0.589	0.581	0.598	0.599	0.567	5.83
116)	1,3,5-trichlorobenzene	0.078	0.081	0.083	0.076	0.083	0.079	0.076		0.079	3.79
117)	1,2,4-trichlorobenzene	1.185	0.992	1.049	1.120	1.175	1.122	1.185	1.163	1.124	6.26
118)	hexachlorobutadiene	0.780	0.641	0.747	0.787	0.780	0.783	0.710	0.663	0.736	7.92
119)	naphthalene	0.760	0.612	0.616	0.651	0.712	0.592	0.743	0.714	0.675	9.62
120)	1,2,3-trichlorobenzene	0.898	1.136	1.152	1.068	1.117	0.891			1.044	11.41
		0.566	0.556	0.610	0.662	0.646	0.563	0.589	0.550	0.593	7.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

MVS5841.M

Wed Jun 05 09:31:12 2013

MSV

6.9.5

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Initial Calibration Verification

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICV5841
 Lab FileID: V135322.D

Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\V135322.D Vial: 13
 Acq On : 4 Jun 2013 8:14 pm Operator: danat
 Sample : ICV5841-50 Inst : MSV
 Misc : MS49281,VV5841,5.0,,,,,1 Multiplr: 1.00
 MS Integration Params: rteintl.p

Method : C:\MSDCHEM\1\METHODS\MVS5841.M (RTE Integrator)
 Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Wed Jun 05 09:28:55 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	121	0.00	7.44
2	tertiary butyl alcohol	1.192	1.105	7.3	125	0.00	7.56
3	1,4-dioxane	0.093	0.087	6.5	119	0.00	11.36
4 I	pentafluorobenzene	1.000	1.000	0.0	111	0.00	9.66
5	chlorodifluoromethane	0.546	0.461	15.6	103	0.00	4.19
6	dichlorodifluoromethane	0.637	0.580	8.9	106	0.00	4.17
7	chloromethane	0.820	0.739	9.9	108	0.00	4.52
8	vinyl chloride	0.814	0.750	7.9	108	0.00	4.75
9	bromomethane	0.353	0.333	5.7	109	-0.01	5.39
10	chloroethane	0.334	0.312	6.6	108	0.00	5.56
11	trichlorofluoromethane	0.722	0.668	7.5	107	0.00	5.96
12	ethyl ether	0.162	0.162	0.0	116	0.00	6.36
13	2-chloropropane	0.833	0.777	6.7	110	0.00	6.57
14	acrolein	0.036	0.040	-11.1	123	0.00	6.64
15	freon 113	0.281	0.230	18.1	93	0.00	6.74
16	1,1-dichloroethene	0.399	0.361	9.5	108	0.00	6.79
17	acetone	0.054	0.049	9.3	110	0.00	6.86
18	iso-butyl alcohol	0.012	0.012	0.0	111	0.00	10.23
19	allyl chloride	0.253	0.247	2.4	105	0.00	7.31
20	acetonitrile	0.091	0.091	0.0	113	0.00	7.31
21	iodomethane	0.631	0.624	1.1	111	0.00	7.08
22	carbon disulfide	1.471	1.382	6.1	109	0.00	7.21
23	methylene chloride	0.363	0.357	1.7	114	0.00	7.50
24	1-chloropropane	0.794	0.754	5.0	112	0.00	7.53
25	methyl acetate	0.138	0.152	-10.1	117	0.00	7.29
26	methyl tert butyl ether	0.747	0.757	-1.3	112	0.00	7.80
27	trans-1,2-dichloroethene	0.419	0.398	5.0	111	0.00	7.86
28	di-isopropyl ether	1.242	1.206	2.9	108	0.00	8.37
29	2-butanone	0.021	0.023	-9.5	114	0.00	9.14
30	1,1-dichloroethane	0.761	0.759	0.3	112	0.00	8.43
31	chloroprene	0.634	0.569	10.3	101	0.00	8.53
32	acrylonitrile	0.061	0.071	-16.4	124	0.00	7.83
33	vinyl acetate	0.035	0.041	-17.1	130	0.00	8.39
34	ethyl tert-butyl ether	1.027	1.005	2.1	107	0.00	8.83
35	ethyl acetate	0.026	0.031	-19.2	130	0.00	9.13
36	2,2-dichloropropane	0.618	0.576	6.8	107	0.00	9.16
37	cis-1,2-dichloroethene	0.412	0.404	1.9	114	0.00	9.16
38	propionitrile	0.022	0.027	-22.7#	124	0.00	9.25
39	methyl acrylate	50.000	51.793	-3.6	118	0.00	9.21

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Initial Calibration Verification

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICV5841
 Lab FileID: V135322.D

		AvgRF	CCRF	% Dev			
40	methacrylonitrile	0.071	0.081	-14.1	121	0.00	9.42
41	bromochloromethane	0.141	0.147	-4.3	113	0.00	9.49
42	tetrahydrofuran	0.065	0.073	-12.3	119	-0.01	9.52
43	chloroform	0.663	0.645	2.7	112	0.00	9.53
44	tert-Butyl Formate	0.204	0.225	-10.3	121	0.00	9.55
45 S	dibromofluoromethane (s)	0.320	0.323	-0.9	115	0.00	9.73
46 S	1,2-dichloroethane-d4 (s)	0.295	0.297	-0.7	115	0.00	10.17
47	1,1,1-trichloroethane	0.616	0.584	5.2	109	0.00	9.78
48	Cyclohexane	0.684	0.645	5.7	109	0.00	9.85
49 I	1,4-difluorobenzene	1.000	1.000	0.0	111	0.00	10.60
50	methylcyclohexane	0.529	0.476	10.0	103	0.00	11.17
51	epichlorohydrin	0.011	0.012	-9.1	120	0.00	11.93
52	n-butyl alcohol	0.004	0.004	0.0	123	0.00	10.73
53	carbon tetrachloride	0.395	0.374	5.3	110	0.00	9.98
54	1,1-dichloropropene	0.438	0.412	5.9	109	0.00	9.96
55	hexane	0.437	0.331	24.3#	91	0.00	8.13
56	2,2,4-Trimethylpentane	1.267	1.059	16.4	97	0.00	10.20
57	benzene	1.198	1.160	3.2	112	0.00	10.23
58	tert-amyl methyl ether	0.642	0.636	0.9	113	0.00	10.24
59	heptane			-----NA-----			
60	isopropyl acetate	0.037	0.040	-8.1	120	0.00	10.25
61	1,2-dichloroethane	0.252	0.257	-2.0	113	0.00	10.26
62	trichloroethene	0.292	0.283	3.1	111	0.00	10.96
63	2-chloroethyl vinyl ether	250.000	251.868	-0.7	128	0.00	11.78
64	methyl methacrylate	0.035	0.039	-11.4	122	-0.01	11.22
65	1,2-dichloropropane	0.275	0.279	-1.5	115	0.00	11.23
66	dibromomethane	0.106	0.110	-3.8	119	0.00	11.41
67	bromodichloromethane	0.305	0.311	-2.0	115	0.00	11.54
68	2-nitropropane	0.039	0.044	-12.8	122	0.00	11.78
69	cis-1,3-dichloropropene	0.387	0.400	-3.4	115	0.00	12.02
70 S	toluene-d8 (s)	1.062	1.029	3.1	114	0.00	12.33
71	4-methyl-2-pentanone	0.052	0.061	-17.3	123	0.00	12.12
72	toluene	0.740	0.718	3.0	113	0.00	12.40
73	isoamyl alcohol	0.006	0.007	-16.7	130	0.00	12.14
74	trans-1,3-dichloropropene	0.298	0.314	-5.4	116	0.00	12.63
75	ethyl methacrylate	0.198	0.221	-11.6	119	0.00	12.60
76	1,1,2-trichloroethane	0.132	0.141	-6.8	119	0.00	12.87
77	2-hexanone	0.042	0.048	-14.3	122	0.00	13.05
78 I	chlorobenzene-d5	1.000	1.000	0.0	114	0.00	14.01
79	tetrachloroethene	0.412	0.375	9.0	107	0.00	13.05
80	1,3-dichloropropane	0.350	0.361	-3.1	119	0.00	13.07
81	butyl acetate	0.051	0.049	3.9	129	0.00	13.12
82	3,3-Dimethyl-1-Butanol	0.013	0.013	0.0	121	0.00	13.24
83	dibromochloromethane	0.244	0.245	-0.4	115	0.00	13.36
84	1,2-dibromoethane	0.176	0.189	-7.4	119	0.00	13.53
85	chlorobenzene	0.930	0.902	3.0	113	0.00	14.04
86	1,1,1,2-tetrachloroethane	0.309	0.309	0.0	115	0.00	14.10
87	ethylbenzene	1.781	1.711	3.9	112	0.00	14.09
88	m,p-xylene	0.675	0.649	3.9	111	0.00	14.20
89	o-xylene	0.629	0.622	1.1	114	0.00	14.68
90	styrene	0.954	0.974	-2.1	113	0.00	14.69
91	bromoform	0.136	0.148	-8.8	119	0.00	15.01

6.9.6
6

Initial Calibration Verification

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5841-ICV5841
 Lab FileID: V135322.D

92	cyclohexanone	0.009	0.009	0.0	111	0.00	15.27
93 S	4-bromofluorobenzene (s)	0.423	0.416	1.7	114	0.00	15.30
94 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	112	0.00	16.61
95	isopropylbenzene	3.762	3.444	8.5	110	0.00	15.06
96	1,1,2,2-tetrachloroethane	0.499	0.498	0.2	118	0.00	15.42
97	trans-1,4-dichloro-2-bute	0.119	0.116	2.5	114	0.00	15.46
98	1,2,3-trichloropropane	0.115	0.113	1.7	116	0.00	15.51
99	bromobenzene	0.747	0.702	6.0	113	0.00	15.53
100	n-propylbenzene	4.423	4.098	7.3	112	0.00	15.52
101	2-chlorotoluene	0.837	0.781	6.7	112	0.00	15.70
102	4-chlorotoluene	2.436	2.222	8.8	112	0.00	15.80
103	1,3,5-trimethylbenzene	2.999	2.763	7.9	110	0.00	15.68
104	tert-butylbenzene	2.767	2.543	8.1	112	0.00	16.08
105	pentachloroethane	0.499	0.476	4.6	112	0.00	16.19
106	1,2,4-trimethylbenzene	2.865	2.698	5.8	110	0.00	16.13
107	sec-butylbenzene	4.204	3.915	6.9	110	0.00	16.32
108	p-isopropyltoluene	3.273	3.074	6.1	110	0.00	16.45
109	1,3-dichlorobenzene	1.520	1.409	7.3	112	0.00	16.55
110	1,4-dichlorobenzene	1.503	1.392	7.4	113	0.00	16.64
111	1,2-dichlorobenzene	1.302	1.251	3.9	113	0.00	17.08
112	Benzyl Chloride	0.827	0.821	0.7	114	0.00	16.77
113	n-butylbenzene	1.673	1.597	4.5	109	0.00	16.91
114	hexachloroethane	0.567	0.549	3.2	113	0.00	17.36
115	1,2-dibromo-3-chloropropa	0.079	0.089	-12.7	120	0.00	17.95
116	1,3,5-trichlorobenzene	1.124	1.065	5.2	107	0.00	18.13
117	1,2,4-trichlorobenzene	0.736	0.779	-5.8	111	0.00	18.86
118	hexachlorobutadiene	0.675	0.646	4.3	111	0.00	18.97
119	naphthalene	1.044	1.206	-15.5	118	0.00	19.19
120	1,2,3-trichlorobenzene	0.593	0.658	-11.0	112	0.00	19.49

(#) = Out of Range
 v135317.D MVS5841.M

SPCC's out = 0 CCC's out = 0
 Thu Jun 06 11:21:49 2013 MSV

Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5856-CC5841
 Lab FileID: V135691.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\V\vv5856\v135691.D Vial: 2
 Acq On : 17 Jun 2013 2:22 pm Operator: danat
 Sample : cc5841-20 Inst : MSV
 Misc : MS49948,VV5856,5.0,,,,,1 Multiplr: 1.00
 MS Integration Params: rteintl.p

Method : C:\MSDCHEM\1\METHODS\MVS5841.M (RTE Integrator)
 Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Wed Jun 05 09:28:55 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	106	-0.01	7.43
2	tertiary butyl alcohol	1.192	1.064	10.7	95	0.00	7.56
3	1,4-dioxane	0.093	0.089	4.3	103	0.01	11.36
4 I	pentafluorobenzene	1.000	1.000	0.0	101	0.00	9.65
5	chlorodifluoromethane	0.546	0.416	23.8#	82	-0.01	4.18
6	dichlorodifluoromethane	0.637	0.601	5.7	95	0.00	4.17
7	chloromethane	0.820	0.622	24.1#	84	0.00	4.51
8	vinyl chloride	0.814	0.688	15.5	89	-0.01	4.75
9	bromomethane	0.353	0.339	4.0	99	-0.02	5.39
10	chloroethane	0.334	0.283	15.3	89	-0.01	5.55
11	trichlorofluoromethane	0.722	0.708	1.9	100	0.00	5.96
12	ethyl ether	0.162	0.136	16.0	89	0.00	6.36
13	2-chloropropane	0.833	0.619	25.7#	77	0.00	6.57
14	acrolein	0.036	0.032	11.1	94	0.00	6.64
15	freon 113	0.281	0.297	-5.7	111	-0.02	6.72
16	1,1-dichloroethene	0.399	0.379	5.0	96	-0.01	6.78
17	acetone	0.054	0.053	1.9	95	-0.01	6.86
18	iso-butyl alcohol	0.012	0.010	16.7	93	0.00	10.22
19	allyl chloride	0.253	0.228	9.9	89	0.00	7.31
20	acetonitrile	0.091	0.069	24.2#	77	0.00	7.30
21	iodomethane	0.631	0.656	-4.0	103	-0.01	7.08
22	carbon disulfide	1.471	1.345	8.6	93	-0.01	7.20
23	methylene chloride	0.363	0.354	2.5	100	-0.01	7.49
24	1-chloropropane	0.794	0.578	27.2#	76	0.00	7.53
25	methyl acetate	0.138	0.107	22.5#	69	0.00	7.29
26	methyl tert butyl ether	0.747	0.648	13.3	88	-0.01	7.79
27	trans-1,2-dichloroethene	0.419	0.411	1.9	100	0.00	7.86
28	di-isopropyl ether	1.242	0.956	23.0#	81	0.00	8.37
29	2-butanone	0.021	0.019	9.5	97	0.00	9.14
30	1,1-dichloroethane	0.761	0.645	15.2	86	0.00	8.42
31	chloroprene	0.634	0.541	14.7	91	-0.01	8.52
32	acrylonitrile	0.061	0.049	19.7	79	0.00	7.83
33	vinyl acetate	0.035	0.032	8.6	93	0.00	8.39
34	ethyl tert-butyl ether	1.027	0.890	13.3	89	0.00	8.83
35	ethyl acetate	0.026	0.019	26.9#	67	0.00	9.14
36	2,2-dichloropropane	0.618	0.598	3.2	98	-0.01	9.15
37	cis-1,2-dichloroethene	0.412	0.394	4.4	98	0.00	9.16
38	propionitrile	0.022	0.018	18.2	79	0.00	9.25
39	methyl acrylate	20.000	20.204	-1.0	89	0.00	9.21

6.9.7
6

Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5856-CC5841
 Lab FileID: V135691.D

		AvgRF	CCRF	% Dev			
40	methacrylonitrile	0.071	0.065	8.5	91	0.00	9.42
41	bromochloromethane	0.141	0.137	2.8	96	0.00	9.48
42	tetrahydrofuran	0.065	0.047	27.7#	75	0.00	9.53
43	chloroform	0.663	0.618	6.8	97	0.00	9.52
44	tert-Butyl Formate	0.204	0.178	12.7	95	0.00	9.55
45 S	dibromofluoromethane (s)	0.320	0.326	-1.9	109	0.00	9.73
46 S	1,2-dichloroethane-d4 (s)	0.295	0.254	13.9	92	-0.01	10.16
47	1,1,1-trichloroethane	0.616	0.594	3.6	97	-0.01	9.77
48	Cyclohexane	0.684	0.609	11.0	88	-0.02	9.84
49 I	1,4-difluorobenzene	1.000	1.000	0.0	100	0.00	10.60
50	methylcyclohexane	0.529	0.490	7.4	95	0.00	11.17
51	epichlorohydrin	0.011	0.009	18.2	81	0.00	11.93
52	n-butyl alcohol	0.004	0.003	25.0#	82	0.00	10.73
53	carbon tetrachloride	0.395	0.381	3.5	96	0.00	9.98
54	1,1-dichloropropene	0.438	0.397	9.4	90	0.00	9.95
55	hexane	0.437	0.349	20.1#	88	-0.01	8.12
56	2,2,4-Trimethylpentane	1.267	1.055	16.7	89	0.00	10.19
57	benzene	1.198	1.064	11.2	93	0.00	10.23
58	tert-amyl methyl ether	0.642	0.569	11.4	94	0.00	10.23
59	heptane	0.259	0.222	14.3	90	-0.01	10.36
60	isopropyl acetate	0.037	0.033	10.8	90	-0.01	10.24
61	1,2-dichloroethane	0.252	0.212	15.9	86	-0.01	10.25
62	trichloroethene	0.292	0.276	5.5	95	0.00	10.95
63	2-chloroethyl vinyl ether	100.000	78.477	21.5#	59	0.00	11.78
64	methyl methacrylate	0.035	0.029	17.1	84	0.00	11.22
65	1,2-dichloropropane	0.275	0.226	17.8	83	0.00	11.23
66	dibromomethane	0.106	0.095	10.4	92	0.00	11.41
67	bromodichloromethane	0.305	0.270	11.5	90	0.00	11.54
68	2-nitropropane	0.039	0.027	30.8#	69	0.00	11.77
69	cis-1,3-dichloropropene	0.387	0.342	11.6	91	0.00	12.02
70 S	toluene-d8 (s)	1.062	1.081	-1.8	110	0.00	12.32
71	4-methyl-2-pentanone	0.052	0.042	19.2	77	0.00	12.12
72	toluene	0.740	0.694	6.2	96	0.00	12.40
73	isoamyl alcohol	0.006	0.005	16.7	79	0.00	12.14
74	trans-1,3-dichloropropene	0.298	0.260	12.8	89	0.00	12.63
75	ethyl methacrylate	0.198	0.164	17.2	80	0.00	12.60
76	1,1,2-trichloroethane	0.132	0.120	9.1	93	-0.01	12.86
77	2-hexanone	0.042	0.043	-2.4	113	0.00	13.05
78 I	chlorobenzene-d5	1.000	1.000	0.0	108	0.00	14.00
79	tetrachloroethene	0.412	0.398	3.4	105	0.00	13.04
80	1,3-dichloropropane	0.350	0.285	18.6	88	0.00	13.07
81	butyl acetate	0.051	0.041	19.6	97	0.00	13.12
82	3,3-Dimethyl-1-Butanol	0.013	0.009	30.8#	80	0.00	13.23
83	dibromochloromethane	0.244	0.213	12.7	98	0.00	13.36
84	1,2-dibromoethane	0.176	0.156	11.4	96	0.00	13.53
85	chlorobenzene	0.930	0.813	12.6	95	0.00	14.03
86	1,1,1,2-tetrachloroethane	0.309	0.278	10.0	96	0.00	14.10
87	ethylbenzene	1.781	1.548	13.1	95	0.00	14.08
88	m,p-xylene	0.675	0.603	10.7	97	0.00	14.20
89	o-xylene	0.629	0.553	12.1	95	0.00	14.67
90	styrene	0.954	0.837	12.3	93	0.00	14.69
91	bromoform	0.136	0.125	8.1	97	0.00	15.01

6.9.7
6

Continuing Calibration Summary

Job Number: JB39747
 Account: AQTPAW Aquaterra Technologies, Inc.
 Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VV5856-CC5841
 Lab FileID: V135691.D

92	cyclohexanone	0.009	0.027	-200.0#	316#	0.00	15.28
93 S	4-bromofluorobenzene (s)	0.423	0.414	2.1	114	0.00	15.30
94 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	108	0.00	16.61
95	isopropylbenzene	3.762	3.213	14.6	93	0.00	15.06
96	1,1,2,2-tetrachloroethane	0.499	0.401	19.6	90	0.00	15.42
97	trans-1,4-dichloro-2-bute	0.119	0.081	31.9#	77	0.00	15.46
98	1,2,3-trichloropropane	0.115	0.105	8.7	96	0.00	15.51
99	bromobenzene	0.747	0.659	11.8	98	0.00	15.52
100	n-propylbenzene	4.423	3.735	15.6	91	0.00	15.52
101	2-chlorotoluene	0.837	0.743	11.2	97	0.00	15.69
102	4-chlorotoluene	2.436	2.071	15.0	94	0.00	15.80
103	1,3,5-trimethylbenzene	2.999	2.557	14.7	92	0.00	15.68
104	tert-butylbenzene	2.767	2.309	16.6	90	0.00	16.08
105	pentachloroethane	0.499	0.417	16.4	92	0.00	16.19
106	1,2,4-trimethylbenzene	2.865	2.490	13.1	94	0.00	16.13
107	sec-butylbenzene	4.204	3.536	15.9	90	0.00	16.32
108	p-isopropyltoluene	3.273	2.724	16.8	88	0.00	16.45
109	1,3-dichlorobenzene	1.520	1.360	10.5	99	0.00	16.55
110	1,4-dichlorobenzene	1.503	1.309	12.9	95	0.00	16.64
111	1,2-dichlorobenzene	1.302	1.168	10.3	98	0.00	17.08
112	Benzyl Chloride	0.827	0.766	7.4	103	0.00	16.77
113	n-butylbenzene	1.673	1.380	17.5	85	0.00	16.91
114	hexachloroethane	0.567	0.495	12.7	91	0.00	17.36
115	1,2-dibromo-3-chloropropa	0.079	0.069	12.7	98	0.00	17.94
116	1,3,5-trichlorobenzene	1.124	1.002	10.9	92	0.00	18.13
117	1,2,4-trichlorobenzene	0.736	0.636	13.6	88	0.00	18.86
118	hexachlorobutadiene	0.675	0.573	15.1	87	0.00	18.97
119	naphthalene	1.044	0.838	19.7	84	0.00	19.19
120	1,2,3-trichlorobenzene	0.593	0.511	13.8	85	0.00	19.48

(#) = Out of Range
 v135316.D MVS5841.M

SPCC's out = 0 CCC's out = 0
 Tue Jun 18 09:29:19 2013 NJVOA08

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V\v5856\
 Data File : v135702.D
 Acq On : 17 Jun 2013 8:23 pm
 Operator : danat
 Sample : jB39747-1
 Misc : MS50054,VV5856,6.5,,,,,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 18 09:48:58 2013
 Quant Method : C:\MSDCHEM\1\METHODS\MVS5841.M
 Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Wed Jun 05 09:28:55 2013
 Response via : Initial Calibration

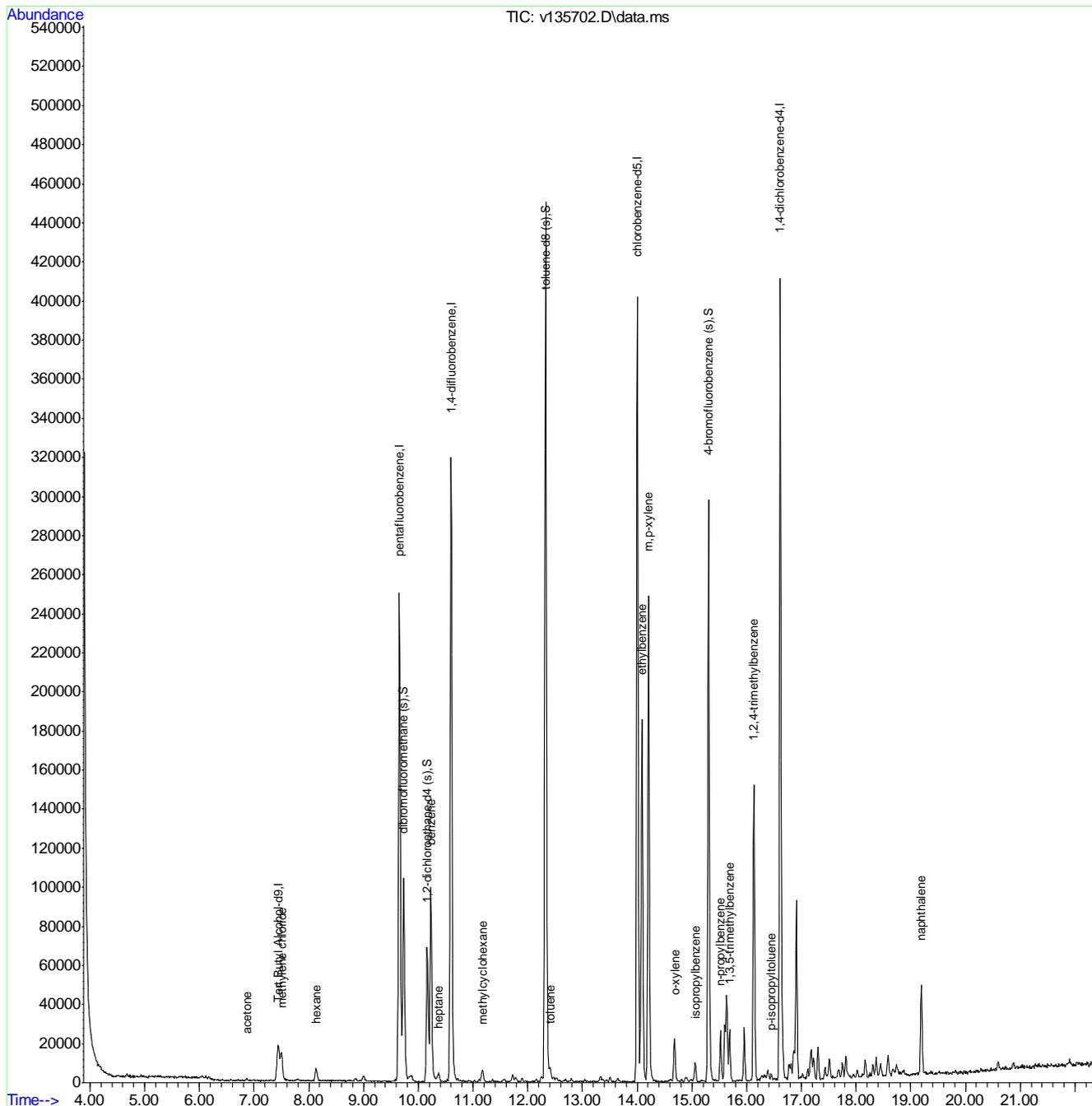
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) Tert Butyl Alcohol-d9	7.447	65	37309	500.00	ug/L	0.00	
4) pentafluorobenzene	9.659	168	237576	50.00	ug/L	0.00	
49) 1,4-difluorobenzene	10.600	114	332776	50.00	ug/L	0.00	
78) chlorobenzene-d5	14.005	117	286978	50.00	ug/L	0.00	
94) 1,4-dichlorobenzene-d4	16.610	152	132503	50.00	ug/L	0.00	
System Monitoring Compounds							
45) dibromofluoromethane (s)	9.732	113	78725	51.71	ug/L	0.00	
Spiked Amount	50.000	Range	65 - 131	Recovery	=	103.42%	
46) 1,2-dichloroethane-d4 (s)	10.161	65	57642	41.16	ug/L	0.00	
Spiked Amount	50.000	Range	70 - 121	Recovery	=	82.32%	
70) toluene-d8 (s)	12.326	98	366104	51.81	ug/L	0.00	
Spiked Amount	50.000	Range	80 - 128	Recovery	=	103.62%	
93) 4-bromofluorobenzene (s)	15.302	95	118331	48.72	ug/L	0.00	
Spiked Amount	50.000	Range	67 - 131	Recovery	=	97.44%	
Target Compounds							
17) acetone	6.871	43	1523	5.99	ug/L	#	94
23) methylene chloride	7.504	84	8151	4.72	ug/L	#	86
50) methylcyclohexane	11.171	83	3616	1.03	ug/L		96
55) hexane	8.137	57	4843	1.66	ug/L		92
57) benzene	10.229	78	111961	14.05	ug/L		98
59) heptane	10.370	57	1018m	0.59	ug/L		
72) toluene	12.410	92	2404	0.49	ug/L	#	87
87) ethylbenzene	14.089	91	161902	15.84	ug/L		96
88) m,p-xylene	14.209	106	91988	23.74	ug/L		99
89) o-xylene	14.685	106	7449	2.06	ug/L		90
95) isopropylbenzene	15.062	105	7965	0.80	ug/L		98
100) n-propylbenzene	15.522	91	24743	2.11	ug/L		99
103) 1,3,5-trimethylbenzene	15.689	105	17279	2.17	ug/L		97
106) 1,2,4-trimethylbenzene	16.134	105	101960	13.43	ug/L		98
108) p-isopropyltoluene	16.453	119	2501	0.29	ug/L		95
119) naphthalene	19.194	128	48841	17.66	ug/L		95

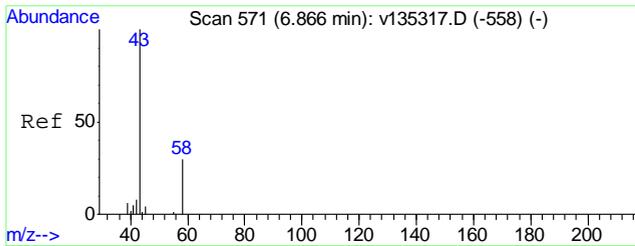
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V\v5856\
 Data File : v135702.D
 Acq On : 17 Jun 2013 8:23 pm
 Operator : danat
 Sample : jb39747-1
 Misc : MS50054,VV5856,6.5,,,,,1
 ALS Vial : 13 Sample Multiplier: 1

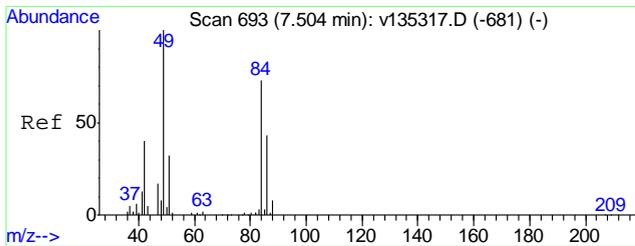
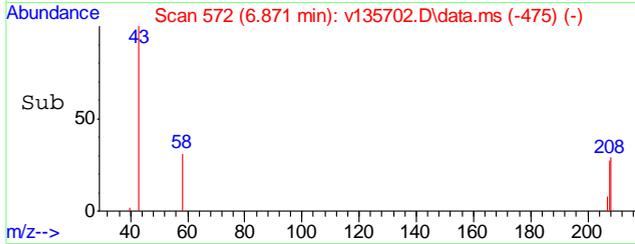
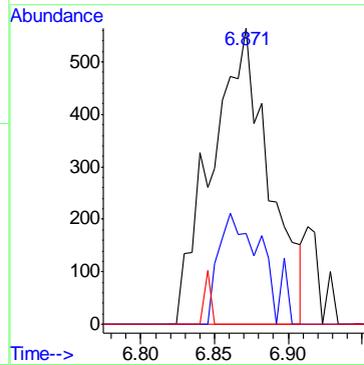
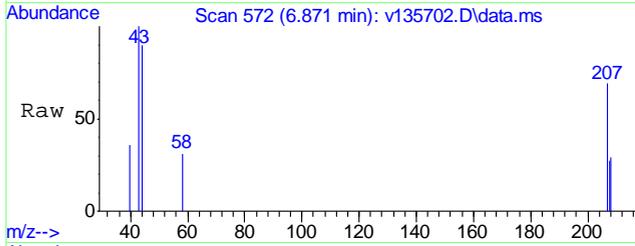
Quant Time: Jun 18 09:48:58 2013
 Quant Method : C:\MSDCHEM\1\METHODS\MVS5841.M
 Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Wed Jun 05 09:28:55 2013
 Response via : Initial Calibration





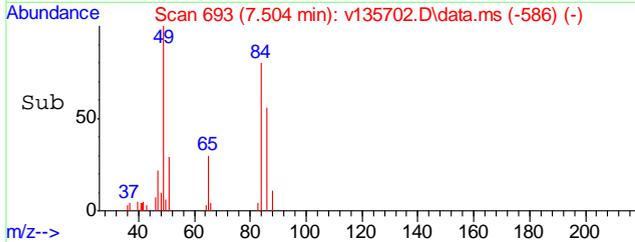
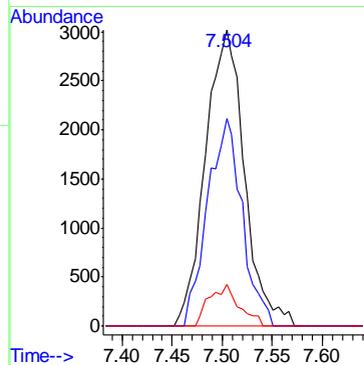
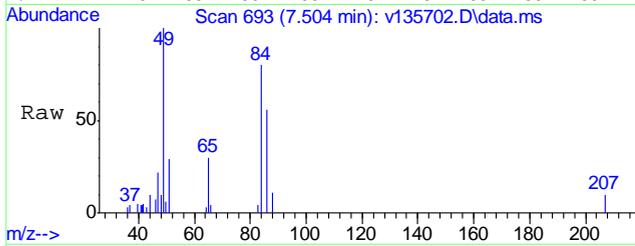
#17
 acetone
 Concen: 5.99 ug/L
 RT: 6.871 min Scan# 572
 Delta R.T. 0.005 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

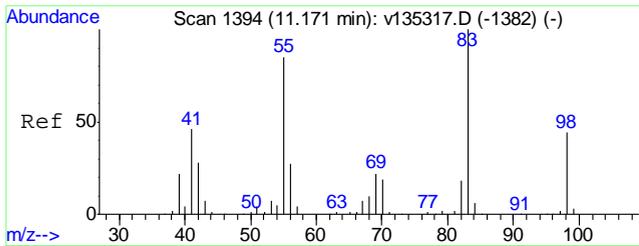
Tgt Ion	Resp	Lower	Upper
43	1523		
58	30.7	20.9	38.7
42	0.0	5.7	10.7#



#23
 methylene chloride
 Concen: 4.72 ug/L
 RT: 7.504 min Scan# 693
 Delta R.T. -0.000 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

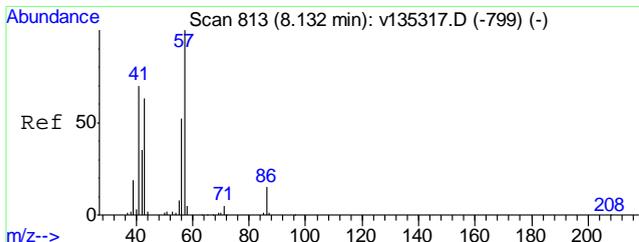
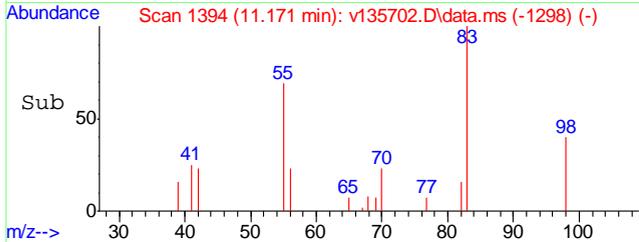
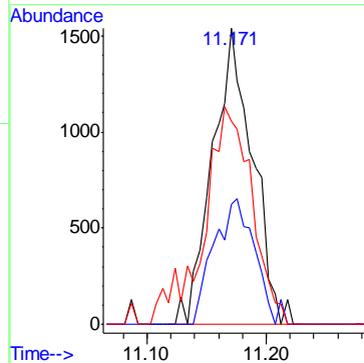
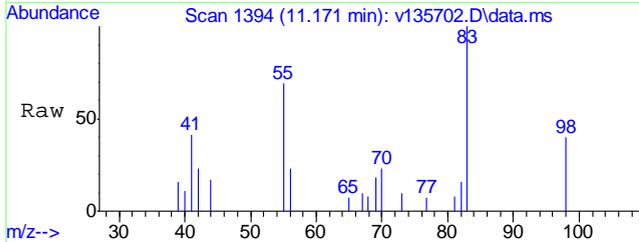
Tgt Ion	Resp	Lower	Upper
84	8151		
86	70.2	41.2	76.4
88	14.1	7.5	13.9#





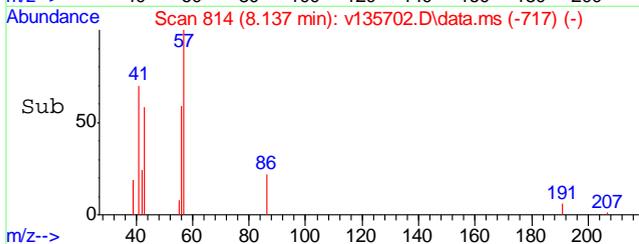
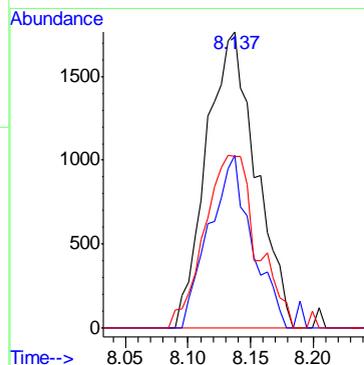
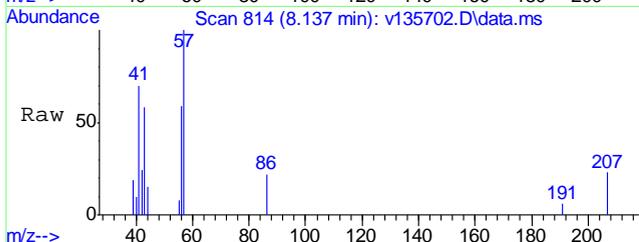
#50
 methylcyclohexane
 Concen: 1.03 ug/L
 RT: 11.171 min Scan# 1394
 Delta R.T. -0.000 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
83	3616		
83	100		
98	42.3	30.0	55.8
55	80.7	59.8	111.0

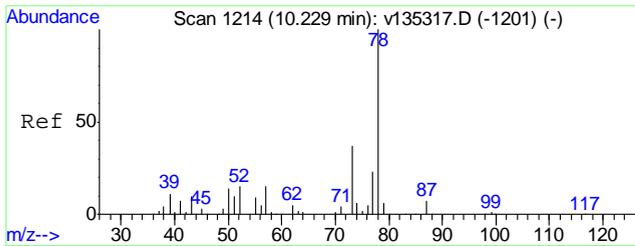


#55
 hexane
 Concen: 1.66 ug/L
 RT: 8.137 min Scan# 814
 Delta R.T. 0.005 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
57	4843		
57	100		
56	58.5	21.7	81.7
43	58.0	33.0	93.0

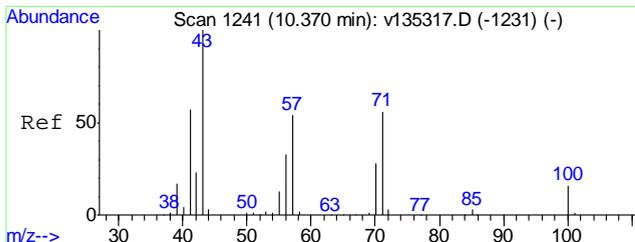
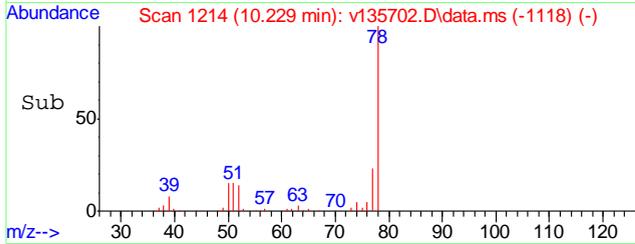
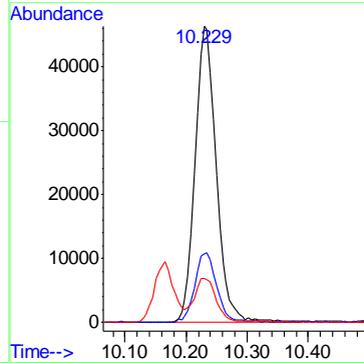
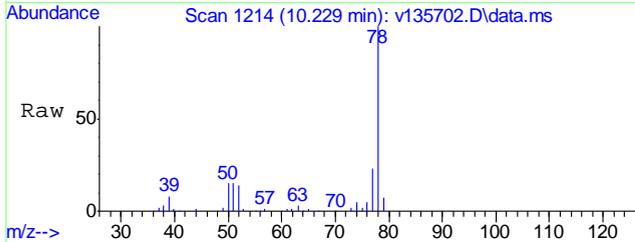


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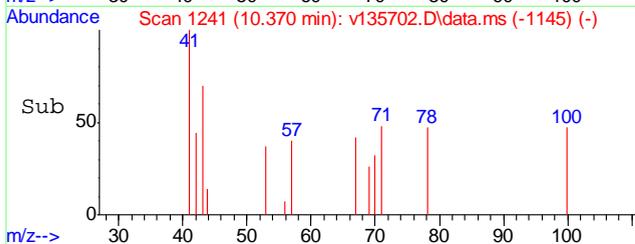
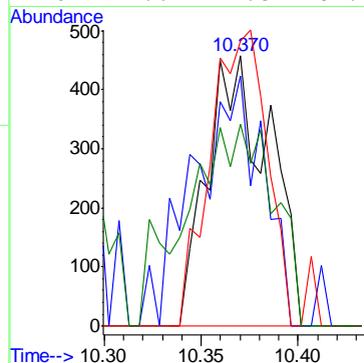
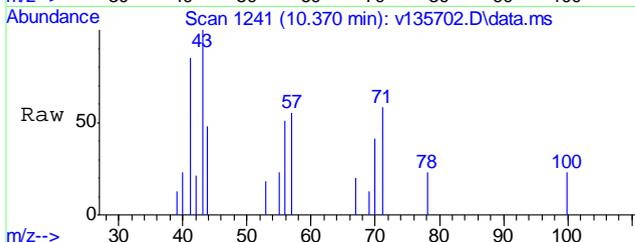
#57
benzene
Concen: 14.05 ug/L
RT: 10.229 min Scan# 1214
Delta R.T. -0.000 min
Lab File: v135702.D
Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
78	111961		
77	23.3	0.0	53.2
51	14.7	0.0	47.0

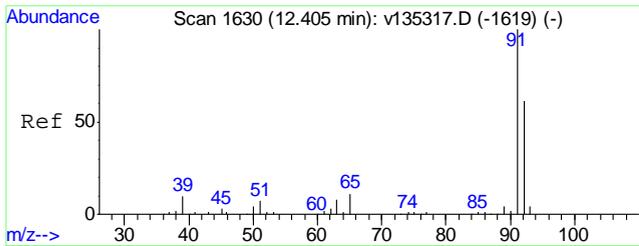


#59
heptane
Concen: 0.59 ug/L m
RT: 10.370 min Scan# 1241
Delta R.T. -0.000 min
Lab File: v135702.D
Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
57	1018		
56	92.8	30.9	90.9#
71	105.5	73.0	133.0
70	74.6	22.3	82.3

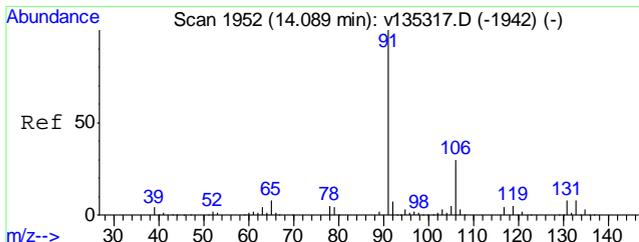
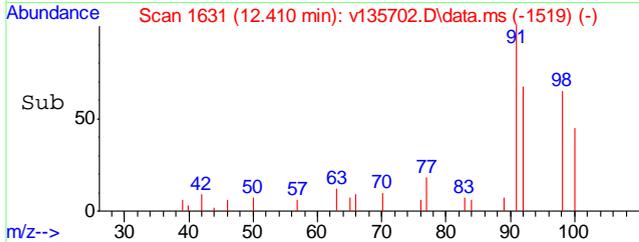
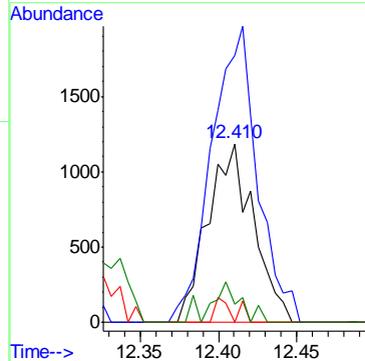
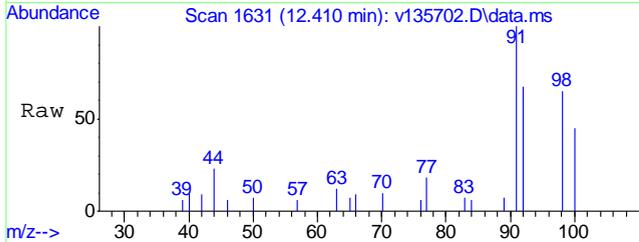


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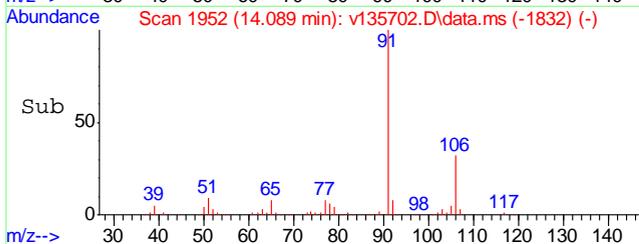
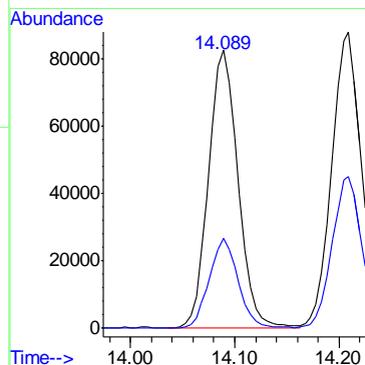
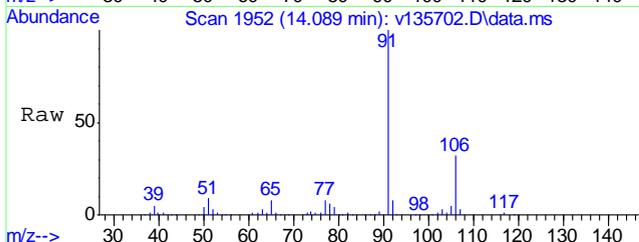
#72
 toluene
 Concen: 0.49 ug/L
 RT: 12.410 min Scan# 1631
 Delta R.T. 0.006 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

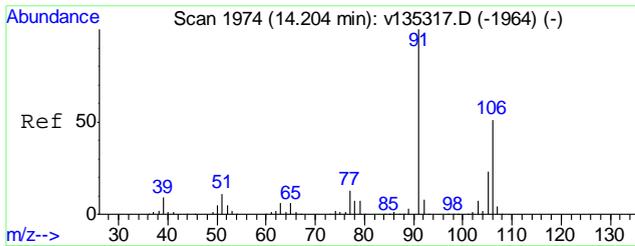
Tgt Ion	Resp	Lower	Upper
92	100		
91	149.4	115.4	214.4
51	0.0	7.8	14.4#
65	10.2	13.2	24.6#



#87
 ethylbenzene
 Concen: 15.84 ug/L
 RT: 14.089 min Scan# 1952
 Delta R.T. -0.000 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

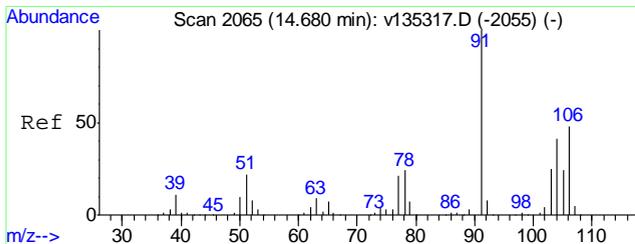
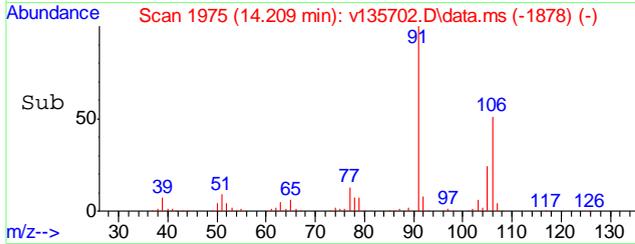
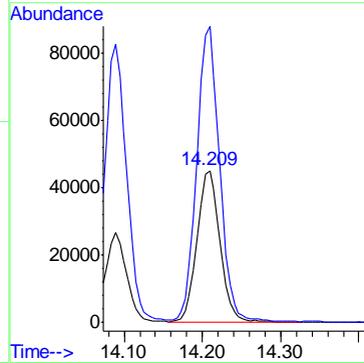
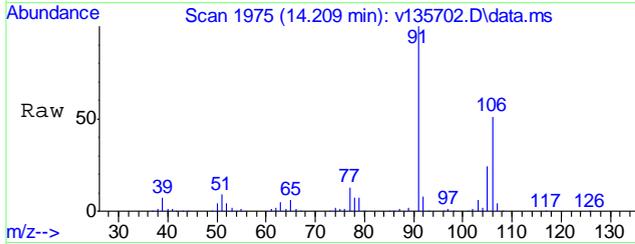
Tgt Ion	Resp	Lower	Upper
91	100		
106	32.2	0.2	60.2





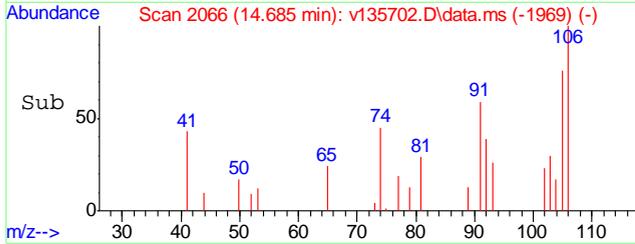
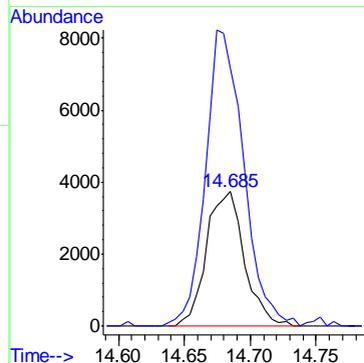
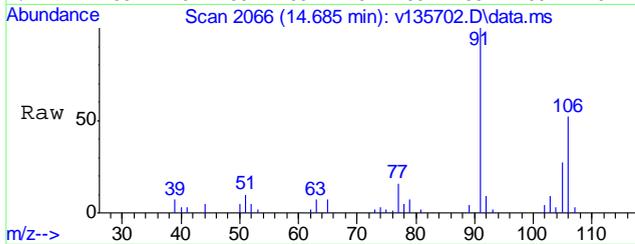
#88
 m,p-xylene
 Concen: 23.74 ug/L
 RT: 14.209 min Scan# 1975
 Delta R.T. 0.005 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion:106 Resp: 91988
 Ion Ratio Lower Upper
 106 100
 91 195.1 137.3 255.1

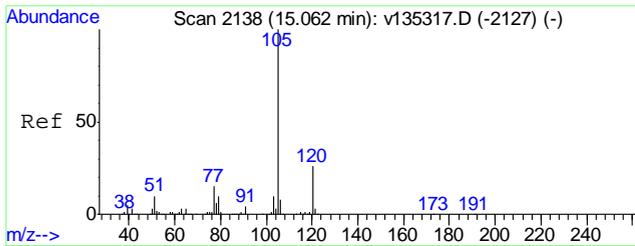


#89
 o-xylene
 Concen: 2.06 ug/L
 RT: 14.685 min Scan# 2066
 Delta R.T. 0.005 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion:106 Resp: 7449
 Ion Ratio Lower Upper
 106 100
 91 192.1 145.5 270.3

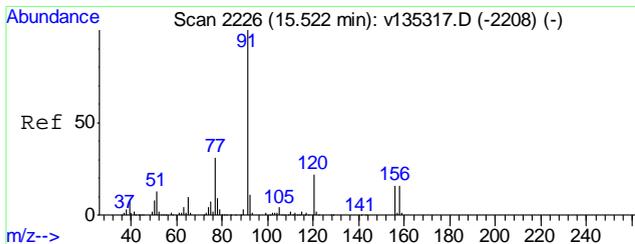
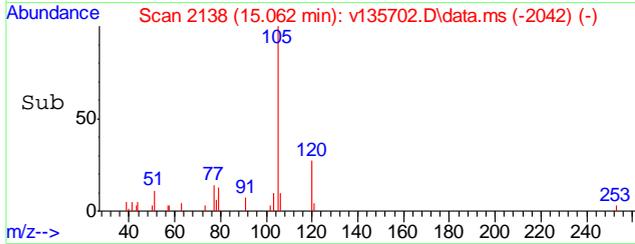
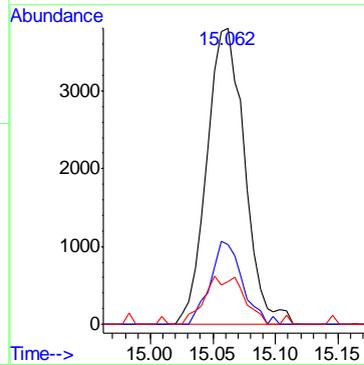
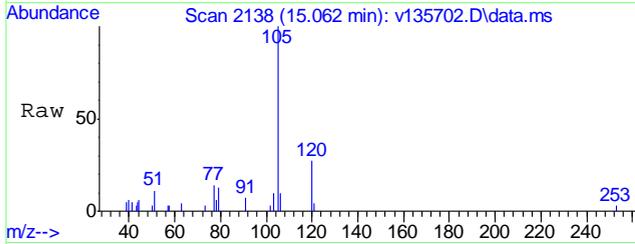


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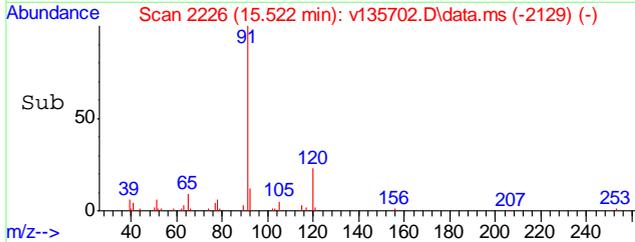
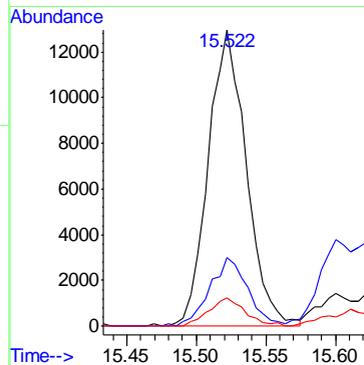
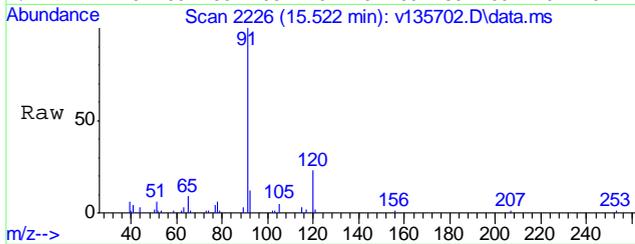
#95
 isopropylbenzene
 Concen: 0.80 ug/L
 RT: 15.062 min Scan# 2138
 Delta R.T. -0.000 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Ratio	Lower	Upper
105	100		
120	26.9	0.0	55.6
77	14.3	0.0	44.9

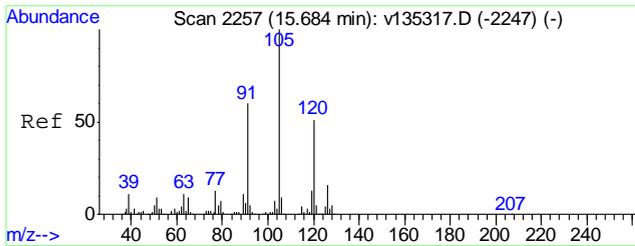


#100
 n-propylbenzene
 Concen: 2.11 ug/L
 RT: 15.522 min Scan# 2226
 Delta R.T. -0.000 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Ratio	Lower	Upper
91	100		
120	22.4	0.0	52.5
65	9.5	0.0	40.0

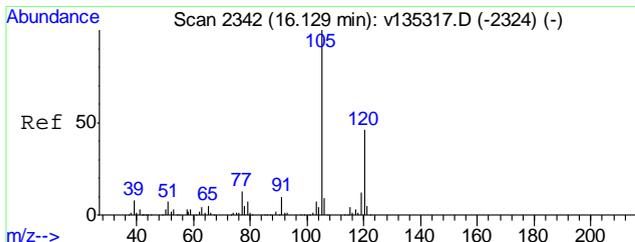
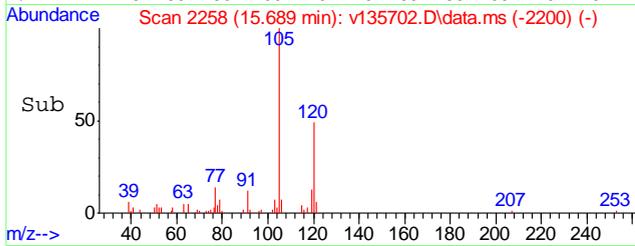
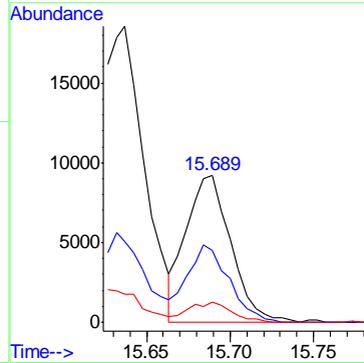
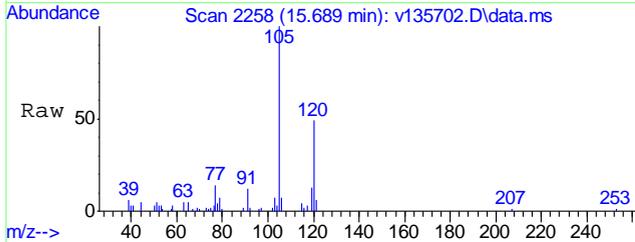


7.1.1
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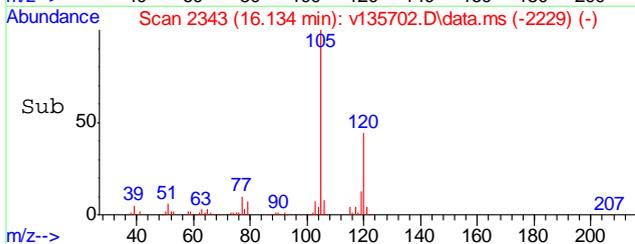
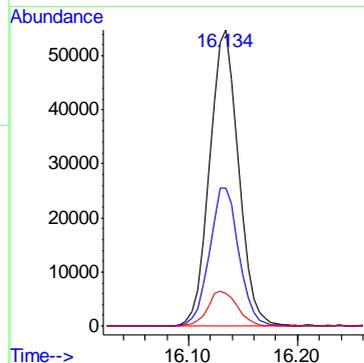
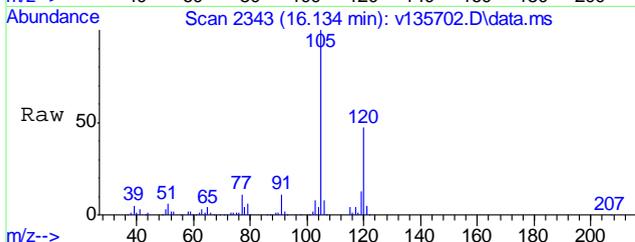
#103
 1,3,5-trimethylbenzene
 Concen: 2.17 ug/L
 RT: 15.689 min Scan# 2258
 Delta R.T. 0.005 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
105	17279		
105	100		
120	48.6	20.8	80.8
77	13.9	0.0	42.8

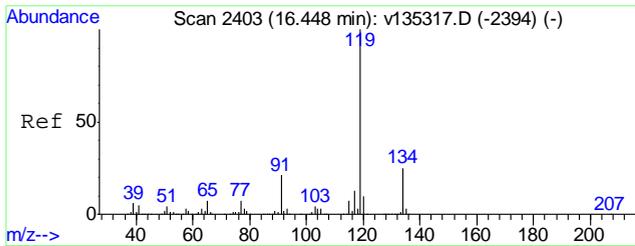


#106
 1,2,4-trimethylbenzene
 Concen: 13.43 ug/L
 RT: 16.134 min Scan# 2343
 Delta R.T. 0.005 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
105	101960		
105	100		
120	46.5	16.1	76.1
77	10.9	0.0	42.8

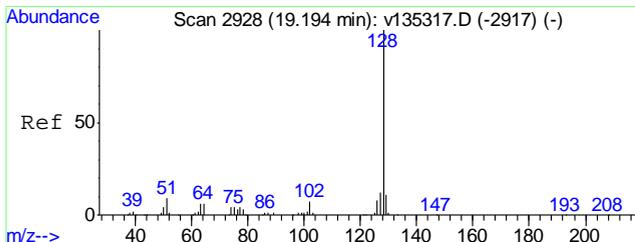
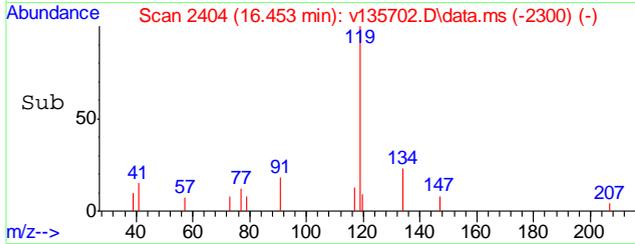
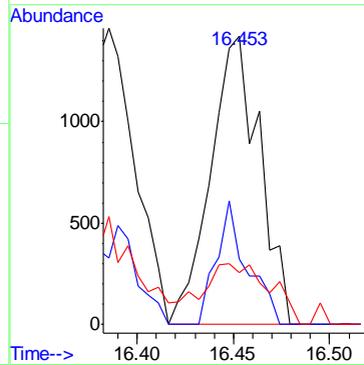
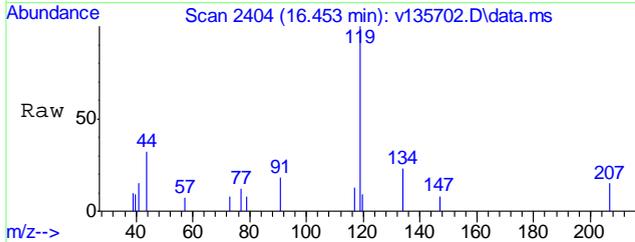


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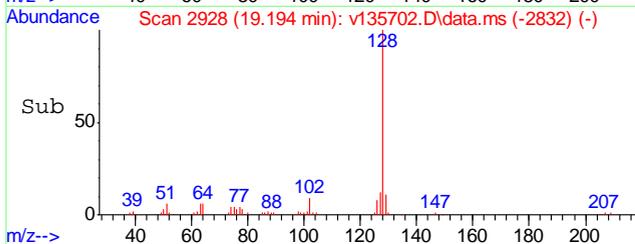
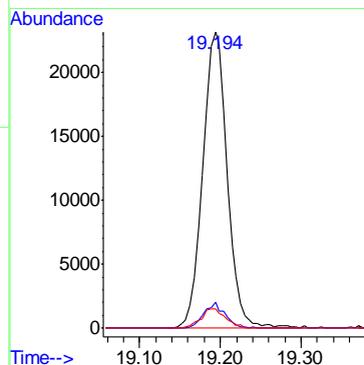
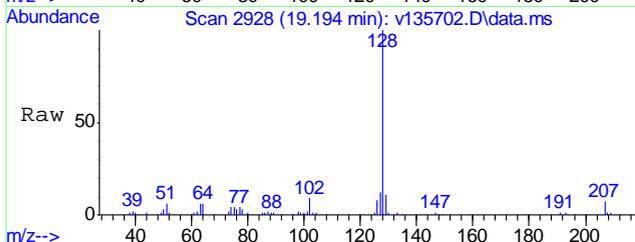
#108
 p-isopropyltoluene
 Concen: 0.29 ug/L
 RT: 16.453 min Scan# 2404
 Delta R.T. 0.005 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
119	2501		
134	22.7	17.3	32.1
91	17.9	14.8	27.4



#119
 naphthalene
 Concen: 17.66 ug/L
 RT: 19.194 min Scan# 2928
 Delta R.T. 0.001 min
 Lab File: v135702.D
 Acq: 17 Jun 2013 8:23 pm

Tgt Ion	Resp	Lower	Upper
128	48841		
102	8.6	0.0	37.4
51	6.4	0.0	38.7



7.11
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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\ve8978-ve8988\
 Data File : E204433.D
 Acq On : 19 Jun 2013 4:29 am
 Operator : Oksanat
 Sample : jB39747-2
 Misc : MS50054,VE8984,4.1,,2,10,1
 ALS Vial : 40 Sample Multiplier: 1

Quant Time: Jun 28 10:14:56 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue Jun 18 15:53:12 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.645	65	131483	500.00	ug/L	0.00
5) pentafluorobenzene	9.863	168	209621	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.778	114	284225	50.00	ug/L	0.00
97) chlorobenzene-d5	14.110	117	263200	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.683	152	149186	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.905	113	83166	41.71	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery =	83.42%		
61) 1,2-dichloroethane-d4 (s)	10.323	65	101927	43.37	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery =	86.74%		
89) toluene-d8 (s)	12.483	98	340648	48.38	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery =	96.76%		
116) 4-bromofluorobenzene (s)	15.381	95	130321	45.19	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery =	90.38%		

Target Compounds

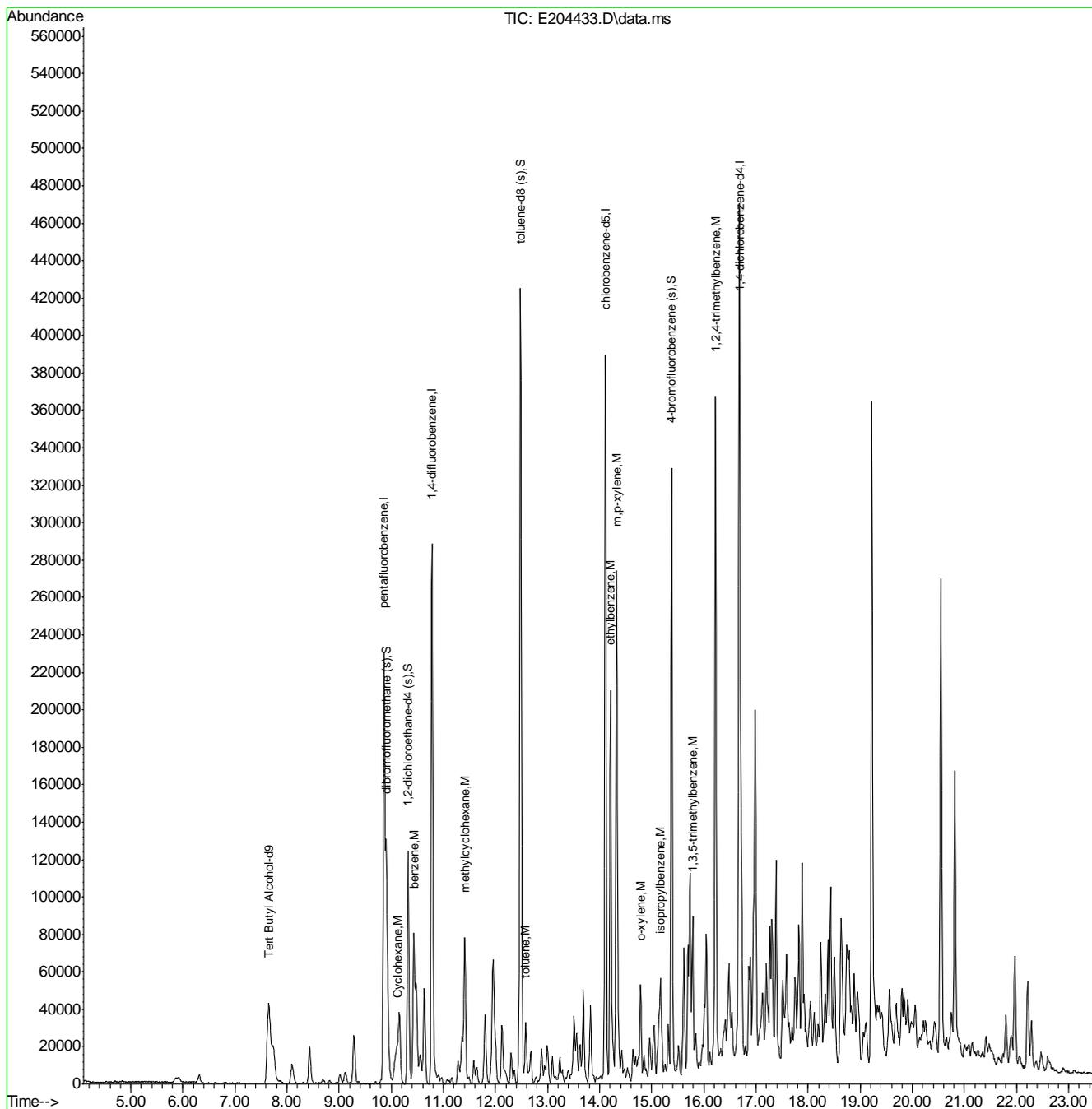
						Qvalue
75) benzene	10.433	78	84850	11.45	ug/L	98
83) methylcyclohexane	11.411	83	43069	14.50	ug/L	87
91) toluene	12.572	92	1025	0.21	ug/L	78
108) ethylbenzene	14.209	91	180031	20.89	ug/L	100
109) m,p-xylene	14.324	106	98882	28.86	ug/L	99
110) o-xylene	14.790	106	9622	2.75	ug/L	92
115) isopropylbenzene	15.166	105	21321	2.31	ug/L	97
125) 1,3,5-trimethylbenzene	15.784	105	46640m	5.98	ug/L	
128) 1,2,4-trimethylbenzene	16.223	105	235254m	29.48	ug/L	
146) Cyclohexane	10.119	84	9932	3.62	ug/L #	6

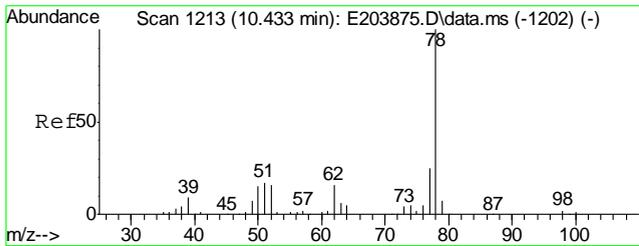
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\ve8978-ve8988\
 Data File : E204433.D
 Acq On : 19 Jun 2013 4:29 am
 Operator : Oksanat
 Sample : jb39747-2
 Misc : MS50054,VE8984,4.1,,2,10,1
 ALS Vial : 40 Sample Multiplier: 1

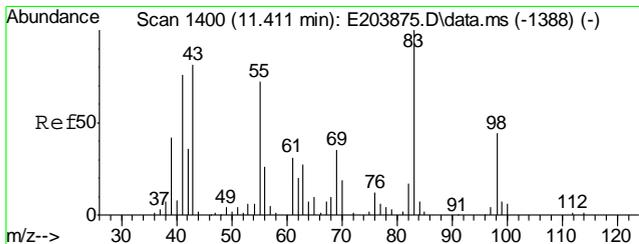
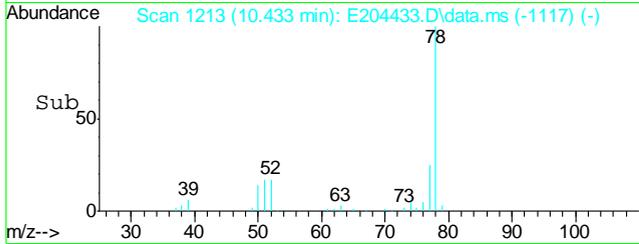
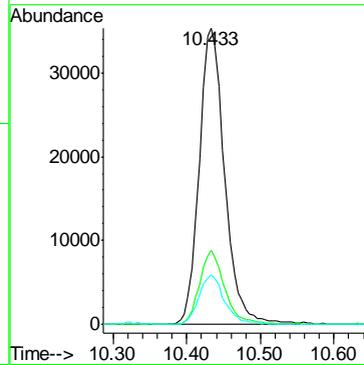
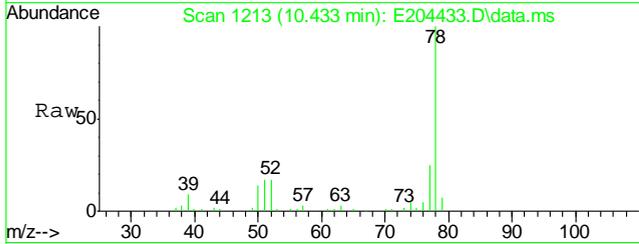
Quant Time: Jun 28 10:14:56 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue Jun 18 15:53:12 2013
 Response via : Initial Calibration





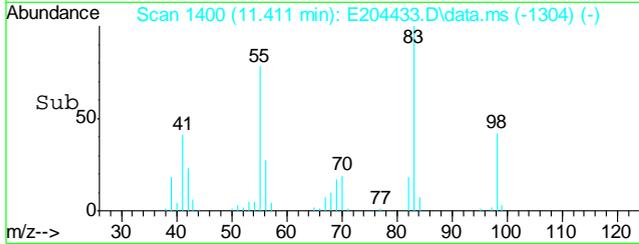
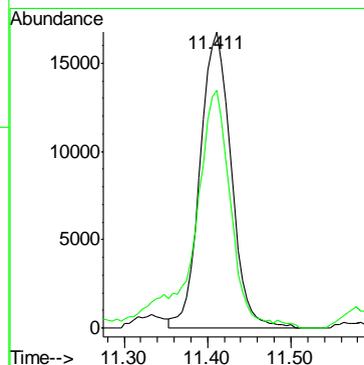
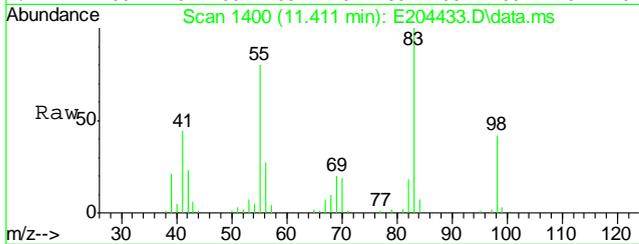
#75
benzene
Concen: 11.45 ug/L
RT: 10.433 min Scan# 1213
Delta R.T. -0.000 min
Lab File: E204433.D
Acq: 19 Jun 2013 4:29 am

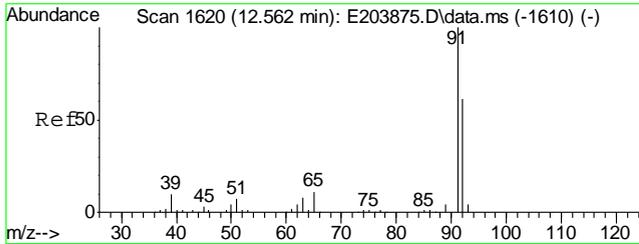
Tgt Ion	Resp	Lower	Upper
78	84850	100	
77	25.2	0.0	54.5
52	16.8	0.0	45.9



#83
methylcyclohexane
Concen: 14.50 ug/L
RT: 11.411 min Scan# 1400
Delta R.T. 0.000 min
Lab File: E204433.D
Acq: 19 Jun 2013 4:29 am

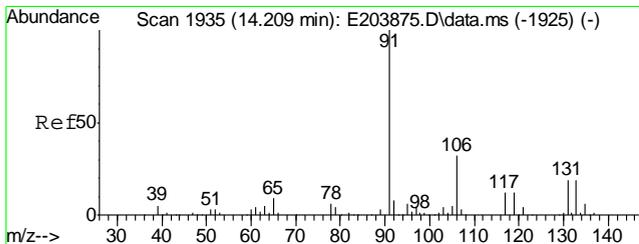
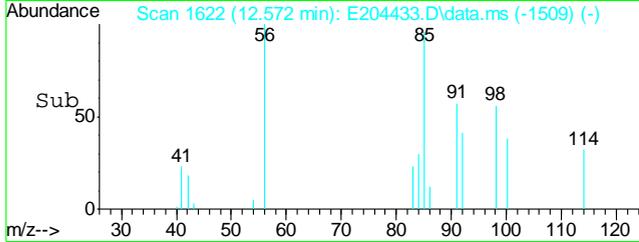
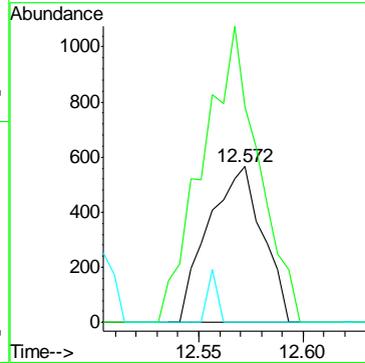
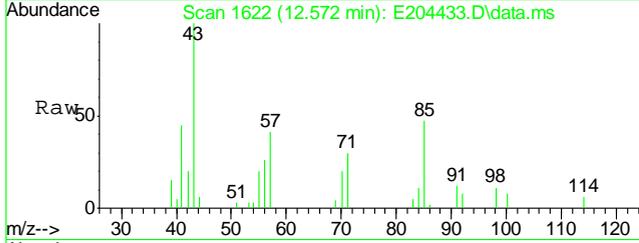
Tgt Ion	Resp	Lower	Upper
83	43069	100	
55	95.2	58.5	108.7





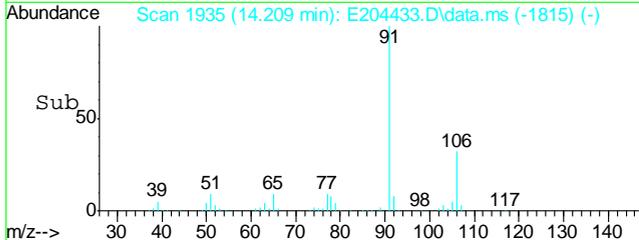
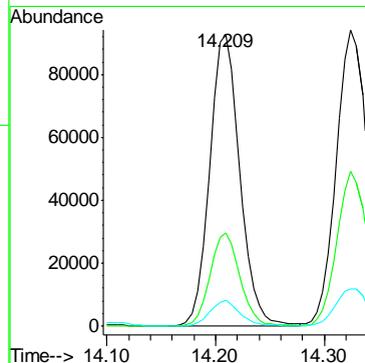
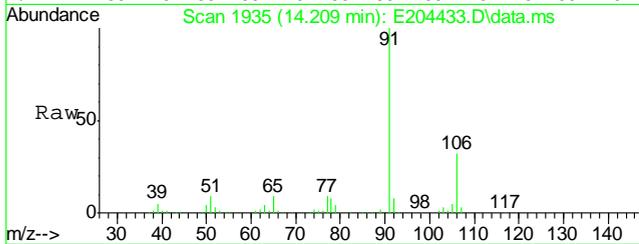
#91
 toluene
 Concen: 0.21 ug/L
 RT: 12.572 min Scan# 1622
 Delta R.T. 0.010 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

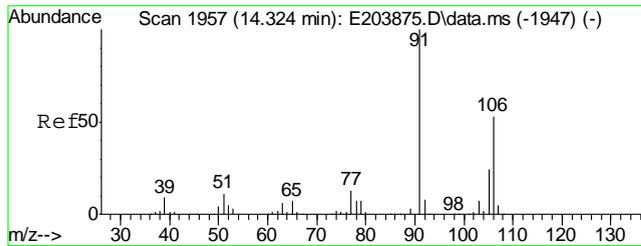
Tgt Ion	Resp	Lower	Upper
92	1025		
91	138.2	135.3	195.3
65	0.0	0.0	48.8



#108
 ethylbenzene
 Concen: 20.89 ug/L
 RT: 14.209 min Scan# 1935
 Delta R.T. -0.000 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

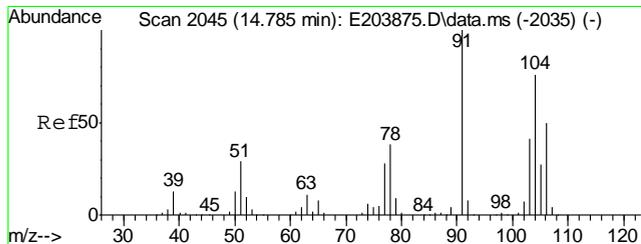
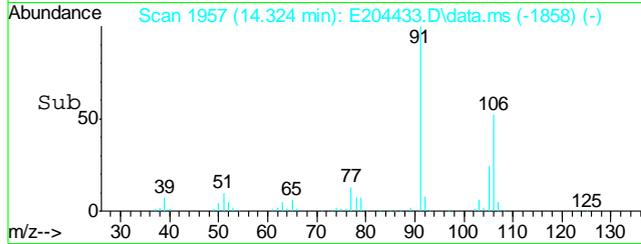
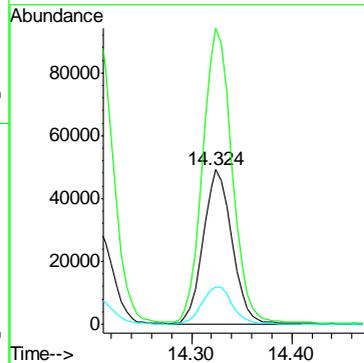
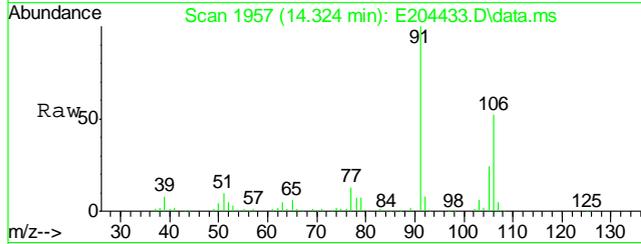
Tgt Ion	Resp	Lower	Upper
91	180031		
106	32.0	2.1	62.1
77	8.7	0.0	38.7





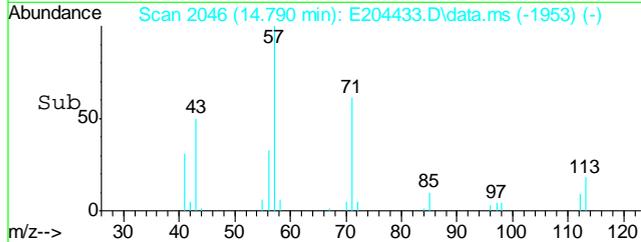
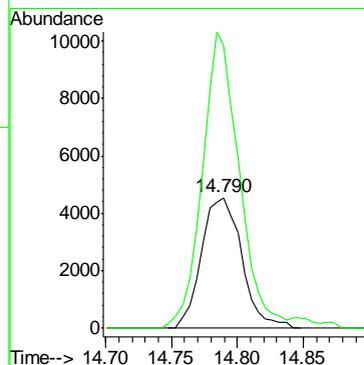
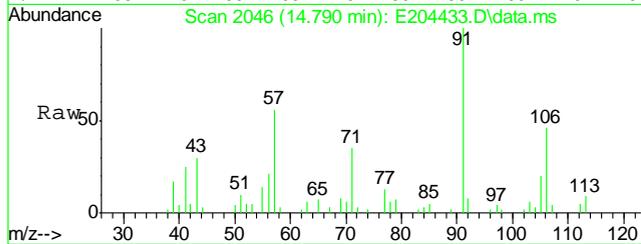
#109
 m,p-xylene
 Concen: 28.86 ug/L
 RT: 14.324 min Scan# 1957
 Delta R.T. -0.000 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

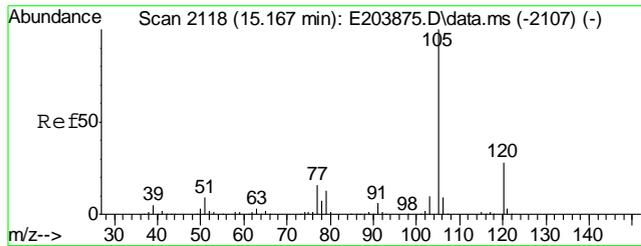
Tgt Ion	Resp	Lower	Upper
106	98882		
106	100		
91	190.8	160.4	220.4
77	24.0	0.0	55.3



#110
 o-xylene
 Concen: 2.75 ug/L
 RT: 14.790 min Scan# 2046
 Delta R.T. 0.005 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

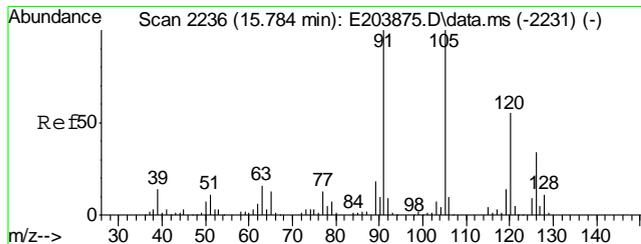
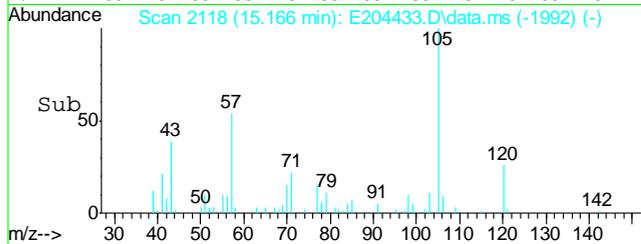
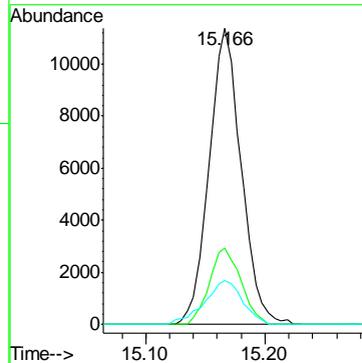
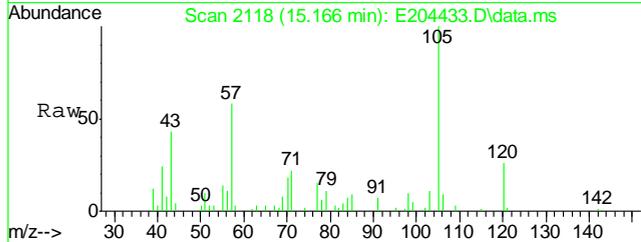
Tgt Ion	Resp	Lower	Upper
106	9622		
106	100		
91	213.3	171.4	231.4





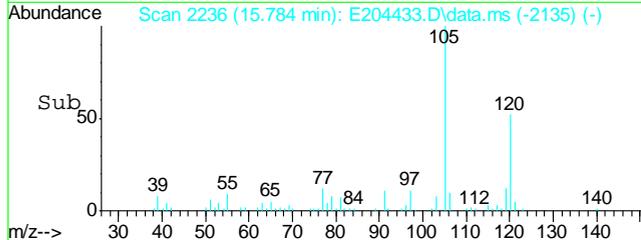
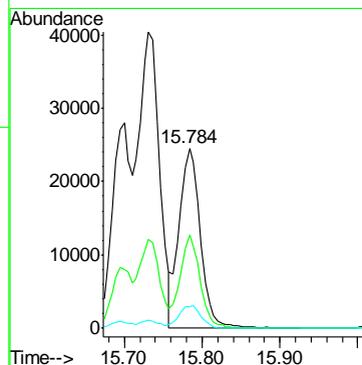
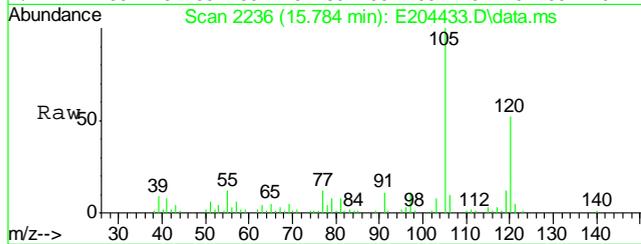
#115
 isopropylbenzene
 Concen: 2.31 ug/L
 RT: 15.166 min Scan# 2118
 Delta R.T. -0.000 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

Tgt Ion	Ratio	Lower	Upper
105	100		
120	25.9	0.0	58.0
77	14.9	0.0	45.6

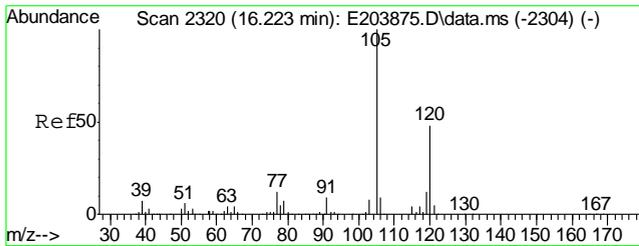


#125
 1,3,5-trimethylbenzene
 Concen: 5.98 ug/L m
 RT: 15.784 min Scan# 2236
 Delta R.T. -0.000 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

Tgt Ion	Ratio	Lower	Upper
105	100		
120	51.9	21.4	81.4
119	11.7	0.0	42.8

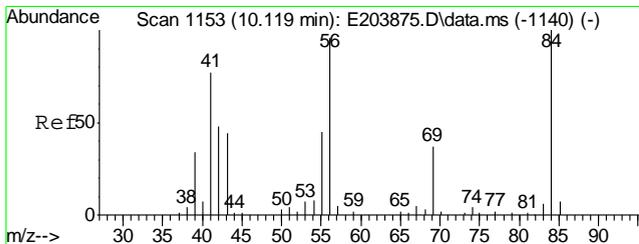
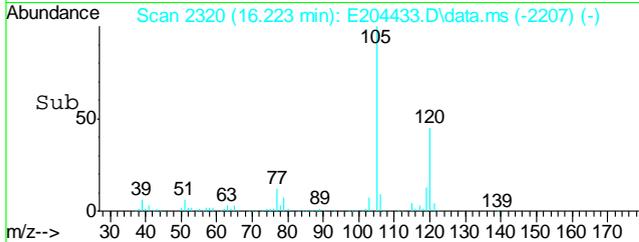
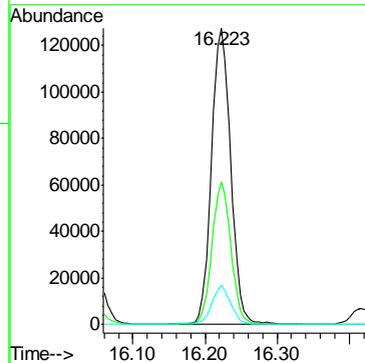
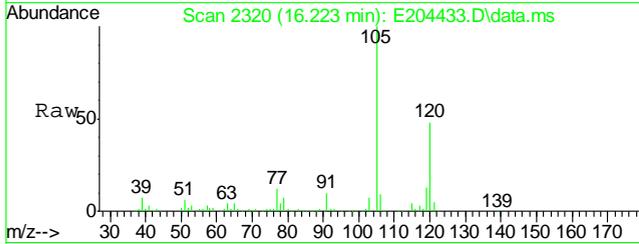


7.12
7



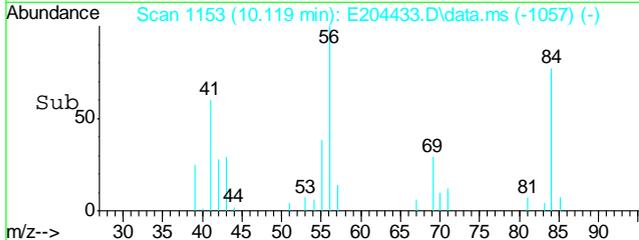
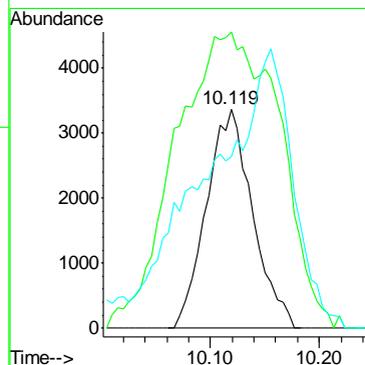
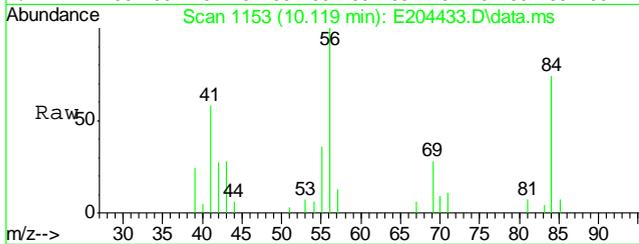
#128
 1,2,4-trimethylbenzene
 Concen: 29.48 ug/L m
 RT: 16.223 min Scan# 2320
 Delta R.T. -0.000 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

Tgt Ion	Ratio	Lower	Upper
105	100		
120	48.2	18.2	78.2
119	13.3	0.0	43.0



#146
 Cyclohexane
 Concen: 3.62 ug/L
 RT: 10.119 min Scan# 1153
 Delta R.T. -0.000 min
 Lab File: E204433.D
 Acq: 19 Jun 2013 4:29 am

Tgt Ion	Ratio	Lower	Upper
84	100		
56	304.3	0.0	30.0#
41	0.0	56.9	116.9#



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E204484.D
 Acq On : 20 Jun 2013 6:16 am
 Operator : Oksanat
 Sample : jB39747-2
 Misc : MS50054,VE8986,4.1,,20,10,1
 ALS Vial : 46 Sample Multiplier: 1

Quant Time: Jun 20 12:53:42 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue Jun 18 15:53:12 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.644	65	120341	500.00	ug/L	0.00
5) pentafluorobenzene	9.862	168	200827	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.777	114	269809	50.00	ug/L	0.00
97) chlorobenzene-d5	14.109	117	244591	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.682	152	139759	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.904	113	79915	41.83	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery	=	83.66%	
61) 1,2-dichloroethane-d4 (s)	10.322	65	95174	42.27	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery	=	84.54%	
89) toluene-d8 (s)	12.482	98	325957	48.77	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery	=	97.54%	
116) 4-bromofluorobenzene (s)	15.379	95	130877	48.44	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery	=	96.88%	

Target Compounds

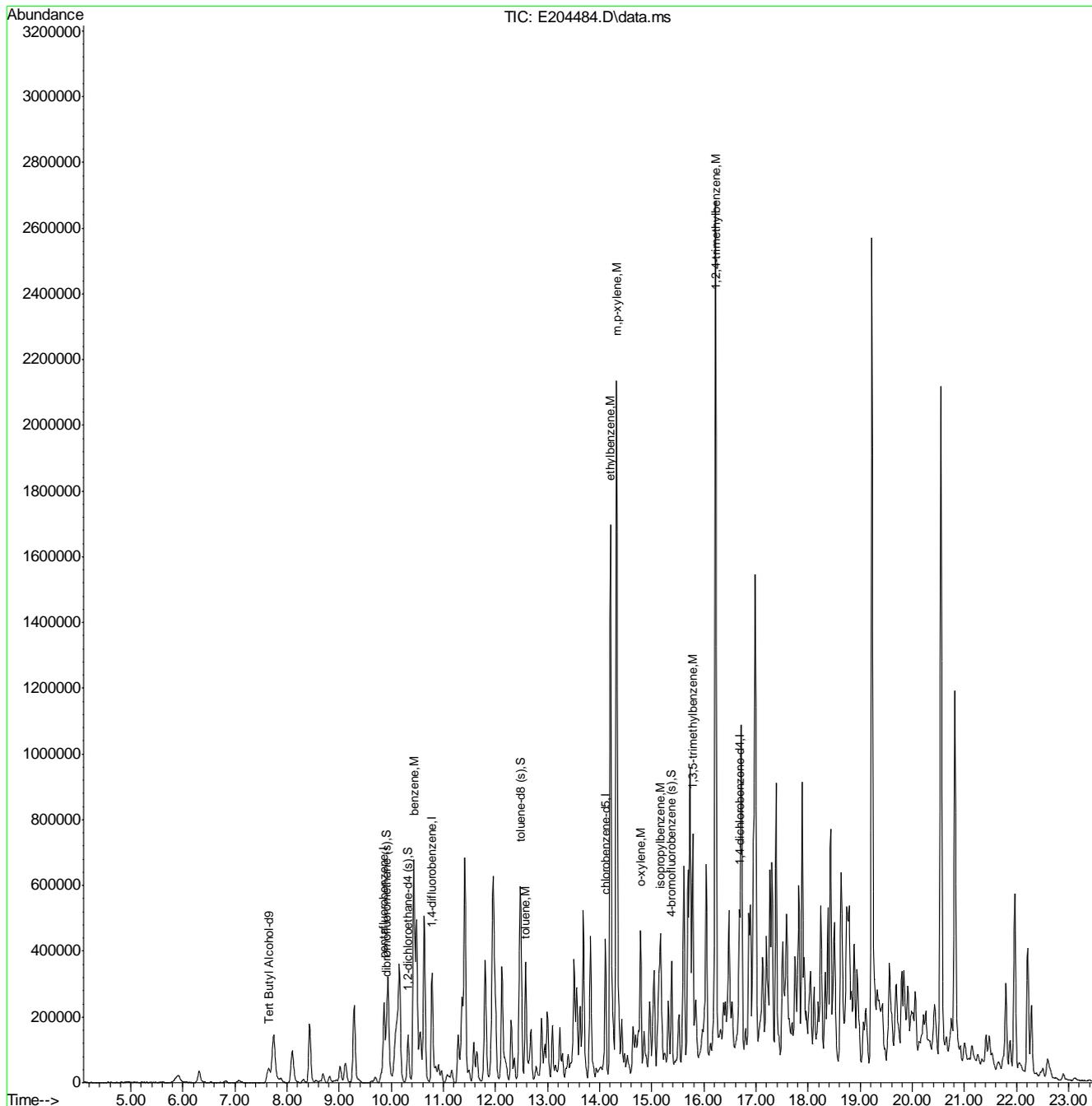
						Qvalue
75) benzene	10.432	78	721076	102.53	ug/L	99
91) toluene	12.560	92	9114	1.99	ug/L	96
108) ethylbenzene	14.208	91	1427283	178.24	ug/L	95
109) m,p-xylene	14.323	106	785833	246.80	ug/L	93
110) o-xylene	14.783	106	81256	24.97	ug/L	99
115) isopropylbenzene	15.165	105	183107	21.22	ug/L	98
125) 1,3,5-trimethylbenzene	15.782	105	374340	51.20	ug/L	99
128) 1,2,4-trimethylbenzene	16.222	105	1696199	226.87	ug/L	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

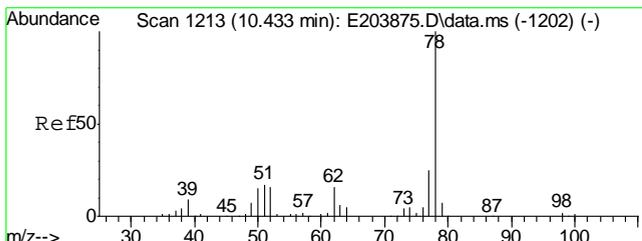
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E204484.D
 Acq On : 20 Jun 2013 6:16 am
 Operator : Oksanat
 Sample : jb39747-2
 Misc : MS50054,VE8986,4.1,,20,10,1
 ALS Vial : 46 Sample Multiplier: 1

Quant Time: Jun 20 12:53:42 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue Jun 18 15:53:12 2013
 Response via : Initial Calibration

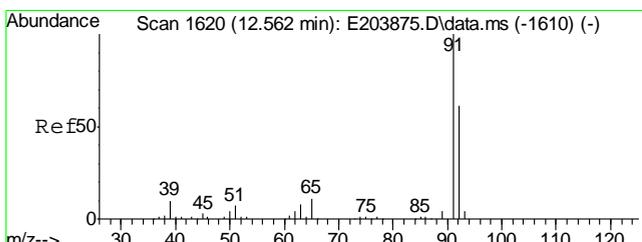
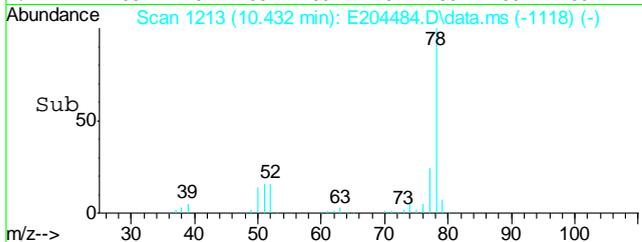
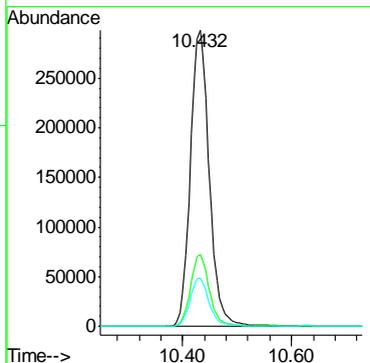
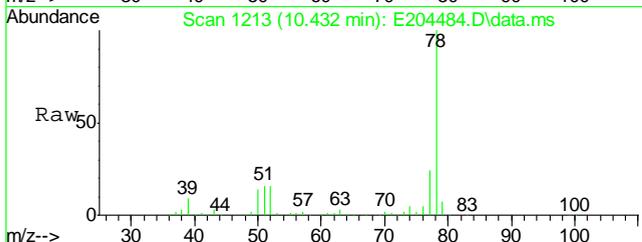


7.1.3
7



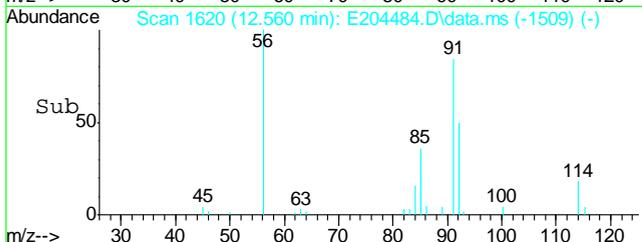
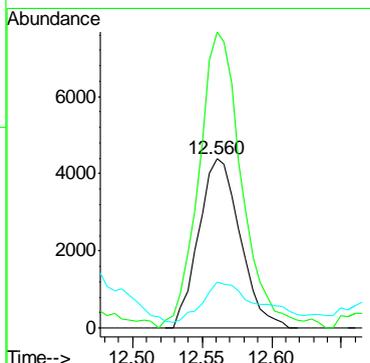
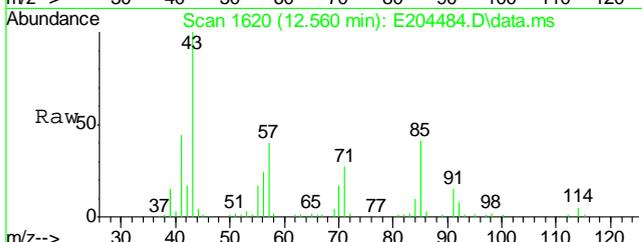
#75
benzene
Concen: 102.53 ug/L
RT: 10.432 min Scan# 1213
Delta R.T. -0.002 min
Lab File: E204484.D
Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
78	721076		
78	100		
77	24.4	0.0	54.5
52	16.4	0.0	45.9

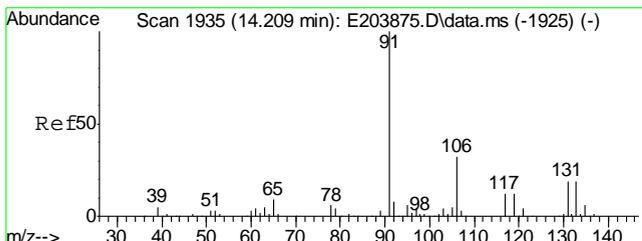


#91
toluene
Concen: 1.99 ug/L
RT: 12.560 min Scan# 1620
Delta R.T. -0.002 min
Lab File: E204484.D
Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
92	9114		
92	100		
91	170.3	135.3	195.3
65	23.0	0.0	48.8

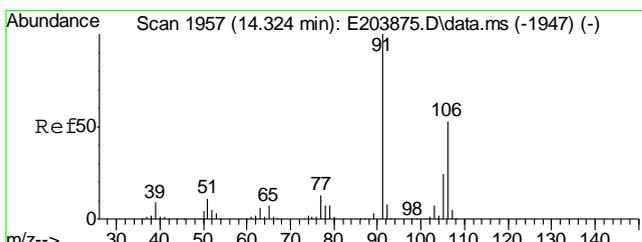
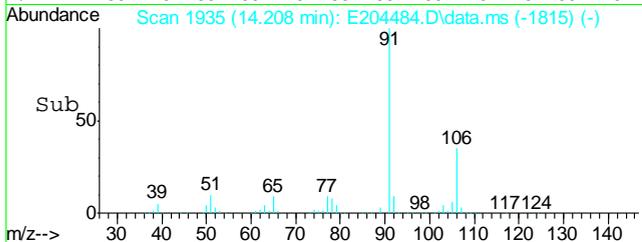
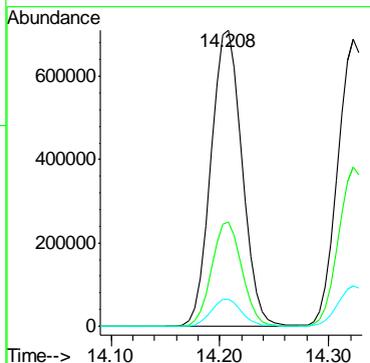
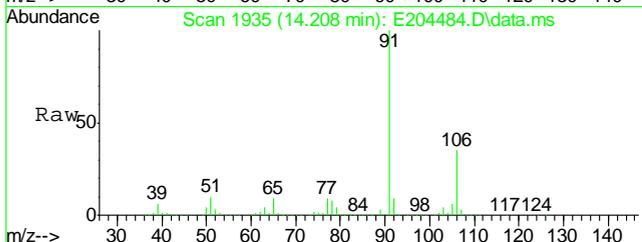


7.1.3
7



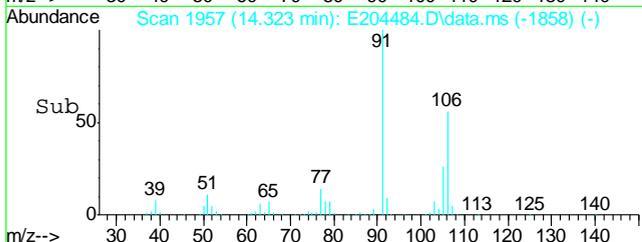
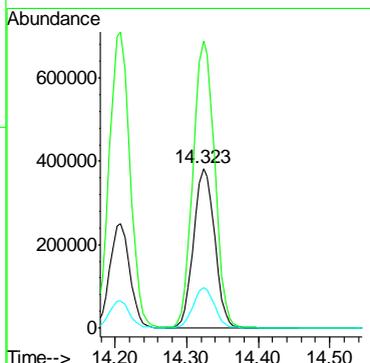
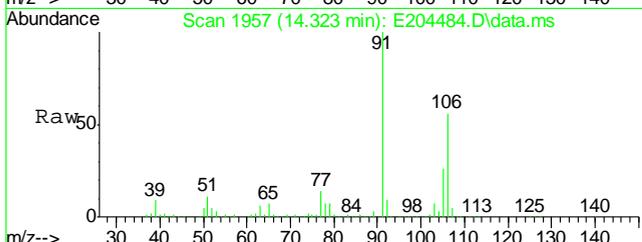
#108
ethylbenzene
Concen: 178.24 ug/L
RT: 14.208 min Scan# 1935
Delta R.T. -0.002 min
Lab File: E204484.D
Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
91	1427283	100	
106	35.4	2.1	62.1
77	9.0	0.0	38.7

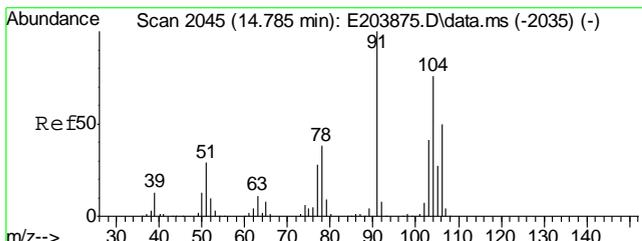


#109
m,p-xylene
Concen: 246.80 ug/L
RT: 14.323 min Scan# 1957
Delta R.T. -0.002 min
Lab File: E204484.D
Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
106	785833	100	
91	179.3	160.4	220.4
77	25.3	0.0	55.3

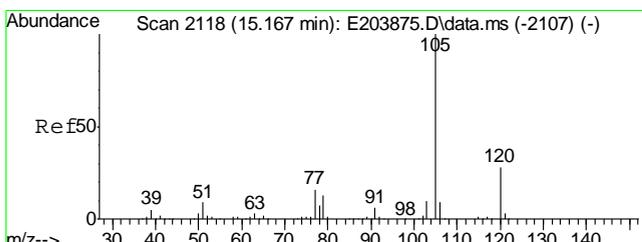
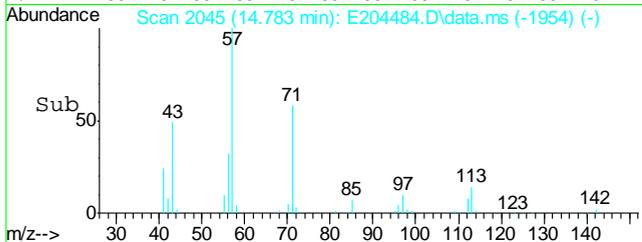
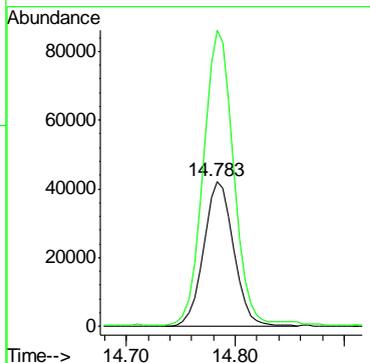
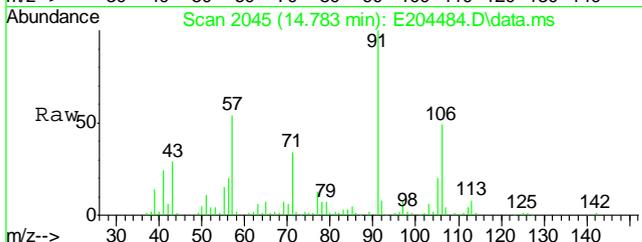


7.13
7



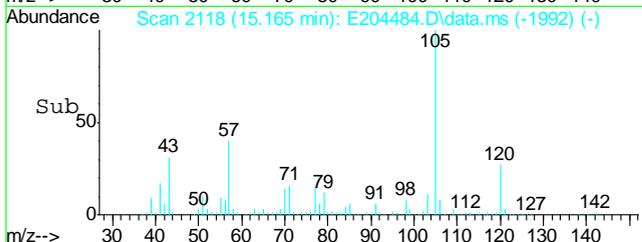
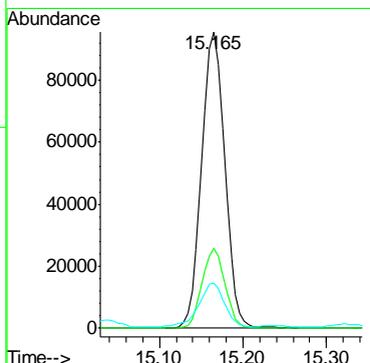
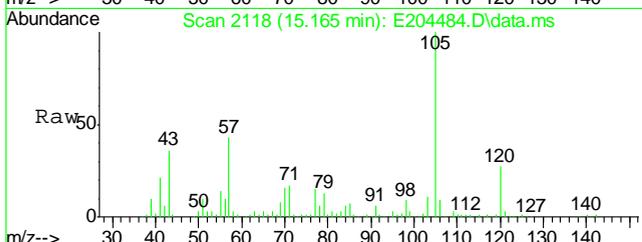
#110
 o-xylene
 Concen: 24.97 ug/L
 RT: 14.783 min Scan# 2045
 Delta R.T. -0.002 min
 Lab File: E204484.D
 Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
106	100		
91	203.4	171.4	231.4

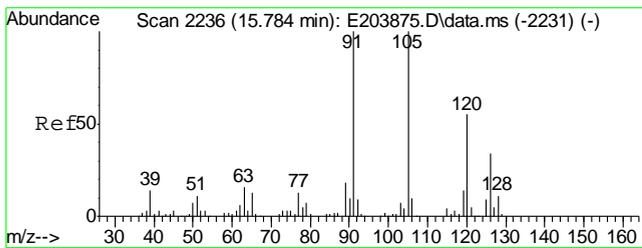


#115
 isopropylbenzene
 Concen: 21.22 ug/L
 RT: 15.165 min Scan# 2118
 Delta R.T. -0.002 min
 Lab File: E204484.D
 Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
105	100		
120	27.0	0.0	58.0
77	14.7	0.0	45.6

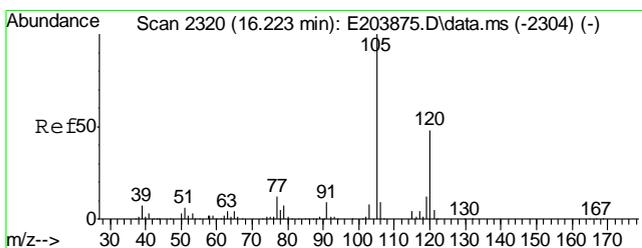
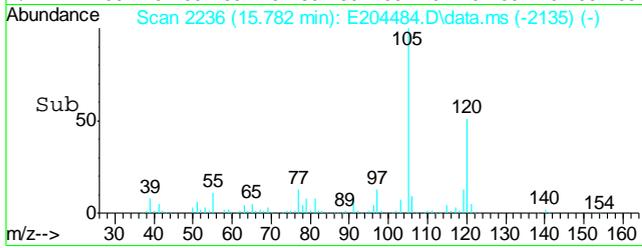
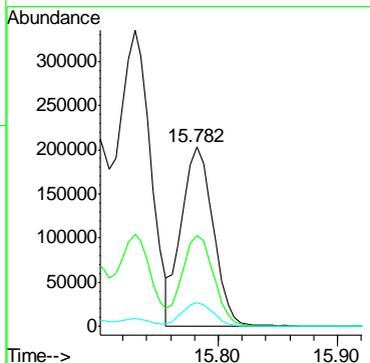
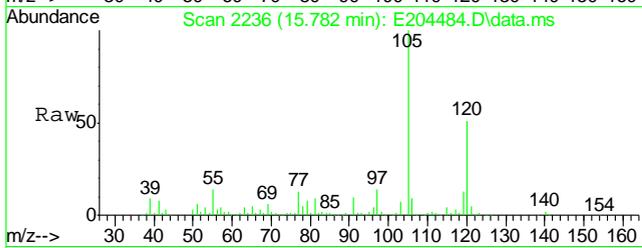


7.1.3
7



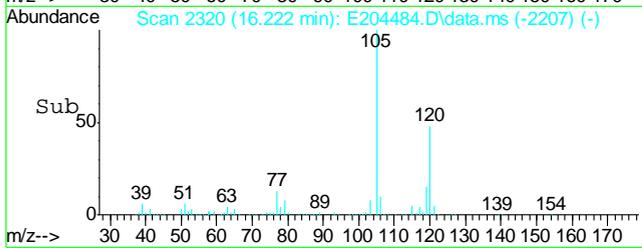
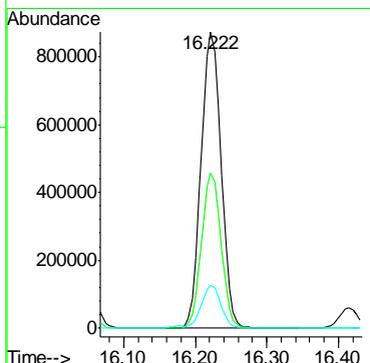
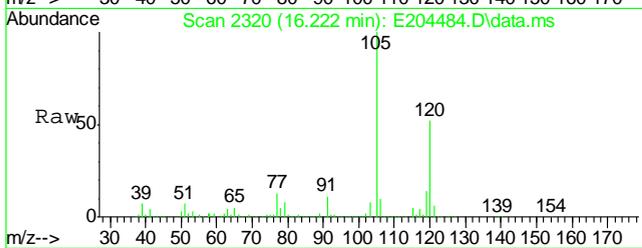
#125
 1,3,5-trimethylbenzene
 Concen: 51.20 ug/L
 RT: 15.782 min Scan# 2236
 Delta R.T. -0.001 min
 Lab File: E204484.D
 Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
105	100		
120	50.8	21.4	81.4
119	13.1	0.0	42.8



#128
 1,2,4-trimethylbenzene
 Concen: 226.87 ug/L
 RT: 16.222 min Scan# 2320
 Delta R.T. -0.001 min
 Lab File: E204484.D
 Acq: 20 Jun 2013 6:16 am

Tgt Ion	Resp	Lower	Upper
105	100		
120	52.2	18.2	78.2
119	14.4	0.0	43.0



7.1.3
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E204423.D
 Acq On : 18 Jun 2013 11:26 pm
 Operator : Oksanat
 Sample : mb
 Misc : MS49927,VE8984,5,,100,5,1
 ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 19 14:46:25 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue Jun 18 15:53:12 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.650	65	103843	500.00	ug/L	0.00
5) pentafluorobenzene	9.863	168	206654	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.778	114	284301	50.00	ug/L	0.00
97) chlorobenzene-d5	14.109	117	263101	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.683	152	150170	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.904	113	80877	41.14	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery	=	82.28%	
61) 1,2-dichloroethane-d4 (s)	10.323	65	100092	43.20	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery	=	86.40%	
89) toluene-d8 (s)	12.478	98	338759	48.10	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery	=	96.20%	
116) 4-bromofluorobenzene (s)	15.380	95	131502	45.30	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery	=	90.60%	

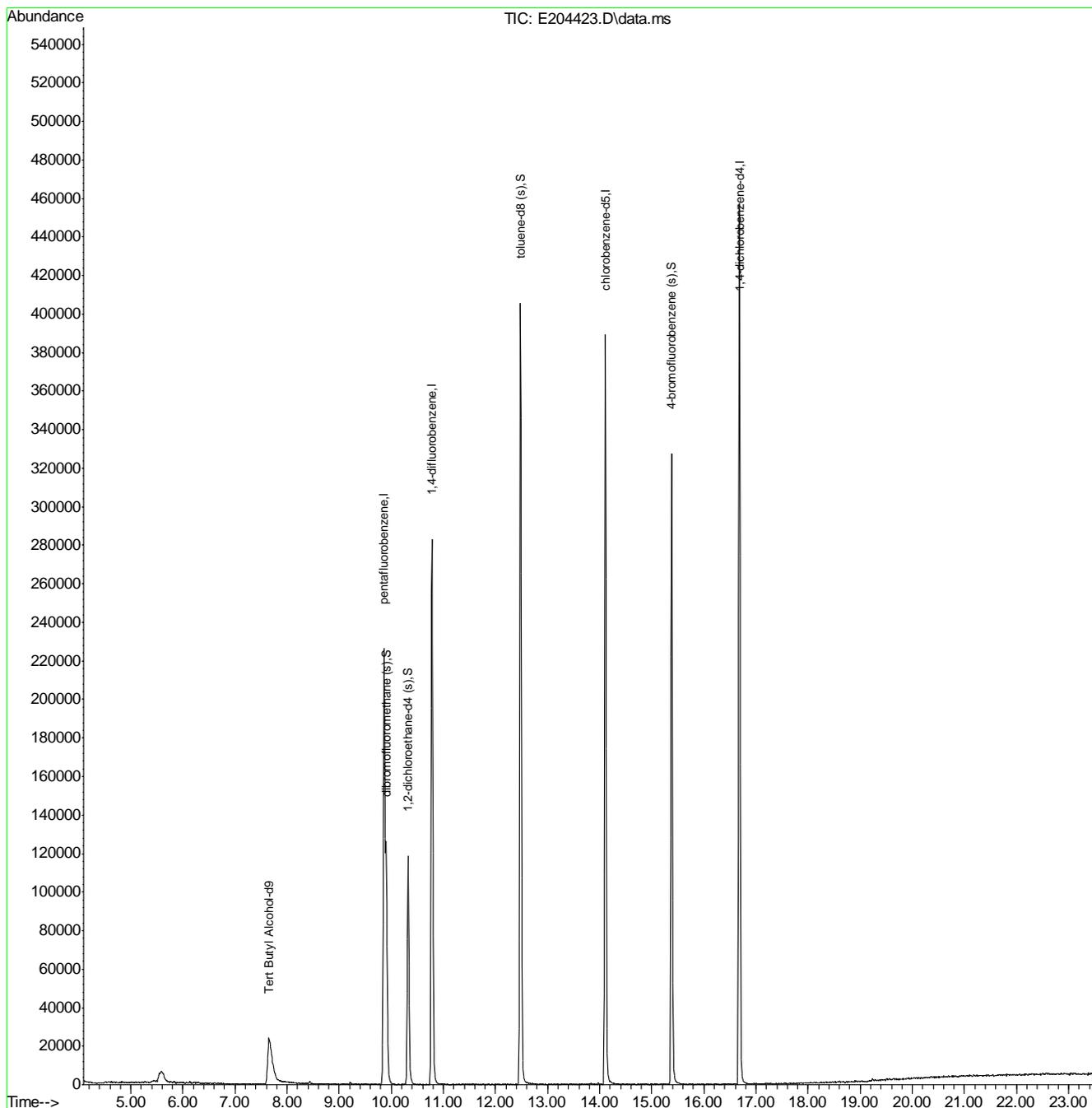
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E204423.D
Acq On : 18 Jun 2013 11:26 pm
Operator : Oksanat
Sample : mb
Misc : MS49927,VE8984,5,,100,5,1
ALS Vial : 30 Sample Multiplier: 1

Quant Time: Jun 19 14:46:25 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue Jun 18 15:53:12 2013
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E204469.D
 Acq On : 19 Jun 2013 10:44 pm
 Operator : Oksanat
 Sample : mb
 Misc : MS50130,VE8986,5,,100,5,1
 ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 20 12:31:13 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue Jun 18 15:53:12 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.670	65	98110	500.00	ug/L	0.02
5) pentafluorobenzene	9.862	168	199263	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.777	114	274052	50.00	ug/L	0.00
97) chlorobenzene-d5	14.109	117	256215	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.682	152	147765	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.904	113	78620	41.48	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery	=	82.96%	
61) 1,2-dichloroethane-d4 (s)	10.317	65	96556	43.22	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery	=	86.44%	
89) toluene-d8 (s)	12.482	98	325570	47.95	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery	=	95.90%	
116) 4-bromofluorobenzene (s)	15.379	95	127499	44.64	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery	=	89.28%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

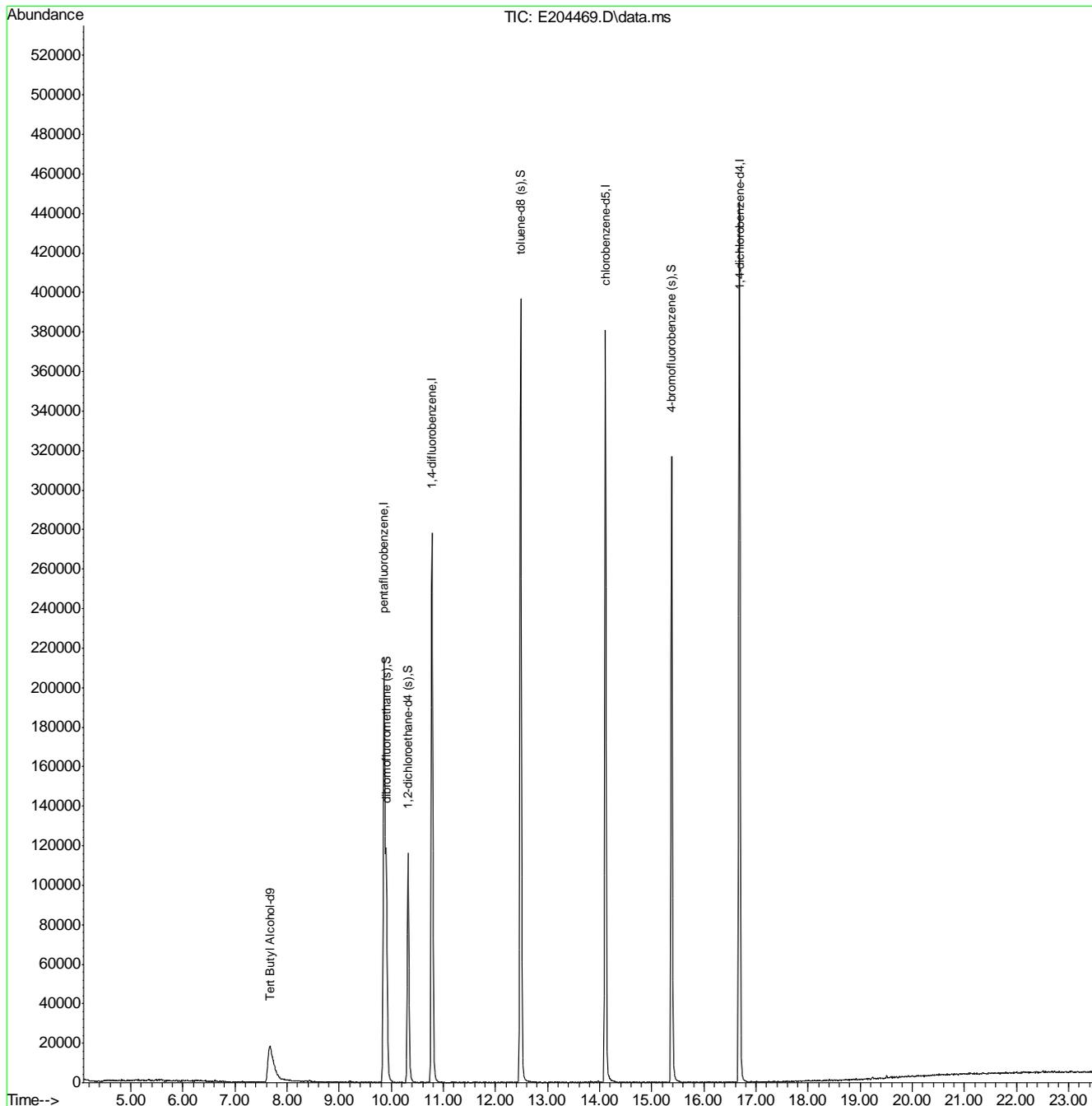
7.22

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E204469.D
 Acq On : 19 Jun 2013 10:44 pm
 Operator : Oksanat
 Sample : mb
 Misc : MS50130,VE8986,5,,100,5,1
 ALS Vial : 31 Sample Multiplier: 1

Quant Time: Jun 20 12:31:13 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8959.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue Jun 18 15:53:12 2013
 Response via : Initial Calibration



7.22
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V\v5856\
 Data File : v135693.D
 Acq On : 17 Jun 2013 3:35 pm
 Operator : danat
 Sample : mb
 Misc : MS49948,VV5856,5.0,,,,,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 18 09:30:18 2013
 Quant Method : C:\MSDCHEM\1\METHODS\MVS5841.M
 Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Wed Jun 05 09:28:55 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert Butyl Alcohol-d9	7.441	65	30285	500.00	ug/L	0.00
4) pentafluorobenzene	9.659	168	199429	50.00	ug/L	0.00
49) 1,4-difluorobenzene	10.600	114	277959	50.00	ug/L	0.00
78) chlorobenzene-d5	14.000	117	238735	50.00	ug/L	0.00
94) 1,4-dichlorobenzene-d4	16.610	152	108335	50.00	ug/L	0.00
System Monitoring Compounds						
45) dibromofluoromethane (s)	9.732	113	64844	50.74	ug/L	0.00
Spiked Amount	50.000	Range	65 - 131	Recovery	=	101.48%
46) 1,2-dichloroethane-d4 (s)	10.166	65	49425	42.04	ug/L	0.00
Spiked Amount	50.000	Range	70 - 121	Recovery	=	84.08%
70) toluene-d8 (s)	12.326	98	307511	52.10	ug/L	0.00
Spiked Amount	50.000	Range	80 - 128	Recovery	=	104.20%
93) 4-bromofluorobenzene (s)	15.302	95	97354	48.18	ug/L	0.00
Spiked Amount	50.000	Range	67 - 131	Recovery	=	96.36%

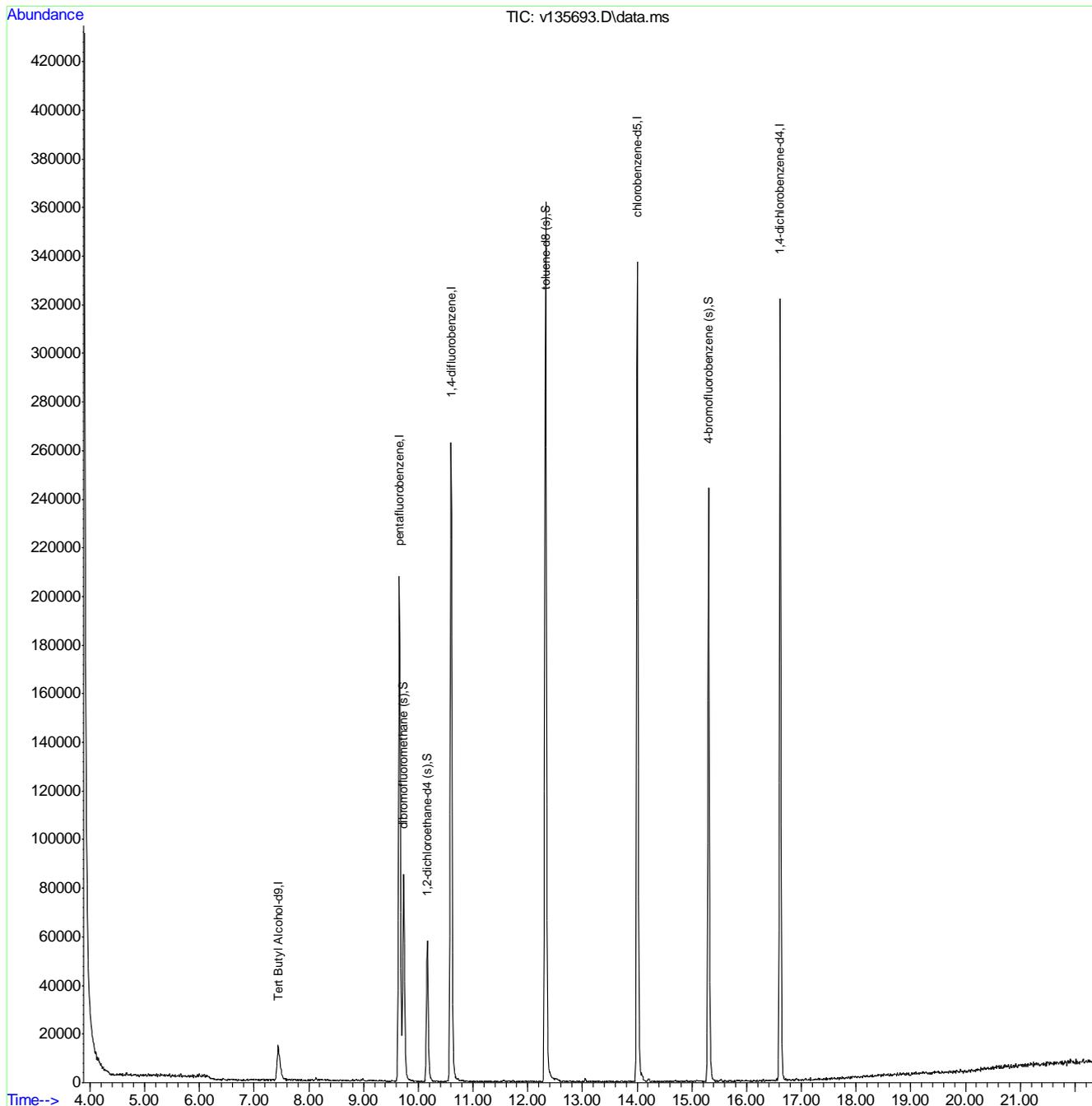
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\V\v5856\
 Data File : v135693.D
 Acq On : 17 Jun 2013 3:35 pm
 Operator : danat
 Sample : mb
 Misc : MS49948,VV5856,5.0,,,,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 18 09:30:18 2013
 Quant Method : C:\MSDCHEM\1\METHODS\MVS5841.M
 Quant Title : SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Wed Jun 05 09:28:55 2013
 Response via : Initial Calibration



7.2.3
7

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB39747 **Client:** ACNJ **Immediate Client Services Action Required:** No
Date / Time Received: 6/18/2013 **Delivery Method:** _____ **Client Service Action Required at Login:** No
Project: SUB **No. Coolers:** 1 **Airbill #'s:** _____

Cooler Security Y or N Y or N
 1. Custody Seals Present: 3. COC Present:
 2. Custody Seals Intact: 4. Smpl Dates/Time OK

Cooler Temperature Y or N
 1. Temp criteria achieved:
 2. Cooler temp verification: Infared gun
 3. Cooler media: Ice (bag)

Quality Control Preservation Y or N N/A
 1. Trip Blank present / cooler:
 2. Trip Blank listed on COC:
 3. Samples preserved properly:
 4. VOCs headspace free:

Sample Integrity - Documentation Y or N
 1. Sample labels present on bottles:
 2. Container labeling complete:
 3. Sample container label / COC agree:

Sample Integrity - Condition Y or N
 1. Sample recvd within HT:
 2. All containers accounted for:
 3. Condition of sample: Intact

Sample Integrity - Instructions Y or N N/A
 1. Analysis requested is clear:
 2. Bottles received for unspecified tests:
 3. Sufficient volume recvd for analysis:
 4. Compositing instructions clear:
 5. Filtering instructions clear:

Comments

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB39747

AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA
 Project No: AOI-5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB39747-1 Collected: 14-JUN-13 08:00 By: LM Received: 14-JUN-13 By: AOI-5_MW-480_0-2'_61413						
JB39747-1	SM21 2540 B MOD.	19-JUN-13	HS			%SOL
JB39747-1	SW846 8011	19-JUN-13 19:38	AP	18-JUN-13	CC	V8011EDB
JB39747-1	SW846 6010C	19-JUN-13 21:37	EAL	19-JUN-13	DA	PB
JB39747-1	SW846 8270C	26-JUN-13 09:06	KR	19-JUN-13	AJ	B8270SL
JB39747-2 Collected: 14-JUN-13 09:00 By: LM Received: 14-JUN-13 By: AOI-5_MW-480_2-4'_61413						
JB39747-2	SM21 2540 B MOD.	19-JUN-13	HS			%SOL
JB39747-2	SW846 8011	19-JUN-13 20:06	AP	18-JUN-13	CC	V8011EDB
JB39747-2	SW846 6010C	19-JUN-13 21:42	EAL	19-JUN-13	DA	PB
JB39747-2	SW846 8270C	26-JUN-13 09:29	KR	19-JUN-13	AJ	B8270SL
JB39747-2	SW846 8270C	16-JUL-13 16:36	KR	19-JUN-13	AJ	B8270SL

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Accutest Internal Chain of Custody

Job Number: JB39747
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA
Received: 06/14/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB39747-1.1	Walk In Ref #9	Chris Cataldo	06/18/13 18:38	Retrieve from Storage
JB39747-1.1	Chris Cataldo	Walk In Ref #9	06/18/13 18:38	Return to Storage
JB39747-1.1	Walk In Ref #9	Hamid Siamak	06/19/13 08:06	Retrieve from Storage
JB39747-1.1	Hamid Siamak	Walk In Ref #9	06/19/13 10:23	Return to Storage
JB39747-1.2	Walk In Ref #9	Bijan Jafari	06/19/13 15:01	Retrieve from Storage
JB39747-1.2	Bijan Jafari	Walk In Ref #9	06/19/13 15:07	Return to Storage
JB39747-2.1	Walk In Ref #9	Chris Cataldo	06/18/13 18:38	Retrieve from Storage
JB39747-2.1	Chris Cataldo	Walk In Ref #9	06/18/13 18:38	Return to Storage
JB39747-2.1	Walk In Ref #9	Hamid Siamak	06/19/13 08:06	Retrieve from Storage
JB39747-2.1	Hamid Siamak	Walk In Ref #9	06/19/13 10:23	Return to Storage
JB39747-2.2	Walk In Ref #9	Bijan Jafari	06/19/13 15:01	Retrieve from Storage
JB39747-2.2	Bijan Jafari	Walk In Ref #9	06/19/13 15:07	Return to Storage



GC/MS Semi-volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33673-MB	R31622.D	1	06/20/13	KR	06/19/13	OP33673	MSR1151

The QC reported here applies to the following samples:

Method: SW846 8270C

JB39747-1, JB39747-2

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	100	12	ug/kg	
56-55-3	Benzo(a)anthracene	ND	100	13	ug/kg	
50-32-8	Benzo(a)pyrene	ND	100	11	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	100	12	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	100	9.9	ug/kg	
218-01-9	Chrysene	ND	100	12	ug/kg	
86-73-7	Fluorene	ND	100	13	ug/kg	
91-20-3	Naphthalene	ND	100	16	ug/kg	
85-01-8	Phenanthrene	ND	100	13	ug/kg	
129-00-0	Pyrene	ND	100	12	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	86%	30-130%
321-60-8	2-Fluorobiphenyl	96%	30-130%
1718-51-0	Terphenyl-d14	102%	30-130%

Blank Spike Summary

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33673-BS	R31623.D	1	06/20/13	KR	06/19/13	OP33673	MSR1151

The QC reported here applies to the following samples:

Method: SW846 8270C

JB39747-1, JB39747-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	2480	2330	94	40-140
56-55-3	Benzo(a)anthracene	2480	2600	105	40-140
50-32-8	Benzo(a)pyrene	2480	2330	94	40-140
205-99-2	Benzo(b)fluoranthene	2480	2730	110	40-140
191-24-2	Benzo(g,h,i)perylene	2480	2620	106	40-140
218-01-9	Chrysene	2480	2480	100	40-140
86-73-7	Fluorene	2480	2410	97	40-140
91-20-3	Naphthalene	2480	3170	128	40-140
85-01-8	Phenanthrene	2480	2460	99	40-140
129-00-0	Pyrene	2480	2290	92	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	75%	30-130%
321-60-8	2-Fluorobiphenyl	87%	30-130%
1718-51-0	Terphenyl-d14	93%	30-130%

9.2.1
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* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33673-MS	R31624.D	1	06/20/13	KR	06/19/13	OP33673	MSR1151
OP33673-MSD	R31625.D	1	06/20/13	KR	06/19/13	OP33673	MSR1151
MC21890-1	R31626.D	1	06/20/13	KR	06/19/13	OP33673	MSR1151

The QC reported here applies to the following samples:

Method: SW846 8270C

JB39747-1, JB39747-2

CAS No.	Compound	MC21890-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	ND	3160	3120	99	3030	95	3	40-140/30	
56-55-3	Benzo(a)anthracene	ND	3160	3380	107	3240	102	4	40-140/30	
50-32-8	Benzo(a)pyrene	ND	3160	2840	90	2730	86	4	40-140/30	
205-99-2	Benzo(b)fluoranthene	ND	3160	3400	108	2940	93	15	40-140/30	
191-24-2	Benzo(g,h,i)perylene	ND	3160	2950	93	2960	93	0	40-140/30	
218-01-9	Chrysene	ND	3160	3290	104	3140	99	5	40-140/30	
86-73-7	Fluorene	ND	3160	3160	100	3080	97	3	40-140/30	
91-20-3	Naphthalene	ND	3160	4200	133	4150	131	1	40-140/30	
85-01-8	Phenanthrene	ND	3160	3330	106	3150	99	6	40-140/30	
129-00-0	Pyrene	ND	3160	3060	97	2980	94	3	40-140/30	

CAS No.	Surrogate Recoveries	MS	MSD	MC21890-1	Limits
4165-60-0	Nitrobenzene-d5	82%	80%	71%	30-130%
321-60-8	2-Fluorobiphenyl	91%	92%	84%	30-130%
1718-51-0	Terphenyl-d14	97%	96%	88%	30-130%

* = Outside of Control Limits.

9.3.1
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Instrument Performance Check (DFTPP)

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSR1128-DFTPP	Injection Date:	05/30/13
Lab File ID:	R30967.D	Injection Time:	07:23
Instrument ID:	GCMSR		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	8712	39.1	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
69	Mass 69 relative abundance	9649	43.3	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	10803	48.5	Pass
197	Less than 1.0% of mass 198	91	0.41	Pass
198	Base peak, 100% relative abundance	22289	100.0	Pass
199	5.0 - 9.0% of mass 198	1599	7.17	Pass
275	10.0 - 30.0% of mass 198	5321	23.9	Pass
365	1.0 - 100.0% of mass 198	649	2.91	Pass
441	Present, but less than mass 443	2539	11.4 (85.0) ^b	Pass
442	40.0 - 100.0% of mass 198	15916	71.4	Pass
443	17.0 - 23.0% of mass 442	2986	13.4 (18.8) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSR1128-ICC1128	R30970.D	05/30/13	08:31	01:08	Initial cal 50
MSR1128-IC1128	R30971.D	05/30/13	08:54	01:31	Initial cal 2
MSR1128-IC1128	R30972.D	05/30/13	09:17	01:54	Initial cal 5
MSR1128-IC1128	R30973.D	05/30/13	09:40	02:17	Initial cal 10
MSR1128-IC1128	R30974.D	05/30/13	10:03	02:40	Initial cal 20
MSR1128-IC1128	R30975.D	05/30/13	10:26	03:03	Initial cal 80
MSR1128-IC1128	R30976.D	05/30/13	10:49	03:26	Initial cal 120
MSR1128-IC1128	R30977.D	05/30/13	11:12	03:49	Initial cal 160
MSR1128-ICV1128	R30978.D	05/30/13	11:35	04:12	Initial cal verification 50
MSR1128-ICV1128	R30979.D	05/30/13	12:01	04:38	Initial cal verification 20
MSR1128-ICV1128	R30980.D	05/30/13	12:24	05:01	Initial cal verification 20
OP33361-MB	R30981.D	05/30/13	12:47	05:24	Method Blank
OP33361-BS	R30982.D	05/30/13	13:10	05:47	Blank Spike
ZZZZZZ	R30983.D	05/30/13	13:33	06:10	(unrelated sample)
OP33248-MB	R30984.D	05/30/13	13:56	06:33	Method Blank
OP33248-BS	R30985.D	05/30/13	14:19	06:56	Blank Spike
OP33248-MS	R30986.D	05/30/13	14:42	07:19	Matrix Spike
OP33248-MSD	R30987.D	05/30/13	15:05	07:42	Matrix Spike Duplicate
MC21000-8	R30988.D	05/30/13	15:28	08:05	(used for QC only; not part of job JB39747)

9.4.1
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Instrument Performance Check (DFTPP)

Job Number: JB39747
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSR1128-DFTPP	Injection Date:	05/30/13
Lab File ID:	R30967.D	Injection Time:	07:23
Instrument ID:	GCMSR		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	R30989.D	05/30/13	15:51	08:28	(unrelated sample)
ZZZZZZ	R30990.D	05/30/13	16:15	08:52	(unrelated sample)
ZZZZZZ	R30991.D	05/30/13	16:38	09:15	(unrelated sample)
ZZZZZZ	R30992.D	05/30/13	17:01	09:38	(unrelated sample)
ZZZZZZ	R30993.D	05/30/13	17:24	10:01	(unrelated sample)
ZZZZZZ	R30994.D	05/30/13	17:47	10:24	(unrelated sample)
ZZZZZZ	R30995.D	05/30/13	18:10	10:47	(unrelated sample)
ZZZZZZ	R30996.D	05/30/13	18:33	11:10	(unrelated sample)
ZZZZZZ	R30997.D	05/30/13	18:56	11:33	(unrelated sample)
ZZZZZZ	R30998.D	05/30/13	19:19	11:56	(unrelated sample)
ZZZZZZ	R30999.D	05/30/13	19:42	12:19	(unrelated sample)

9.4.1
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Instrument Performance Check (DFTPP)

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSR1151-DFTPP	Injection Date:	06/20/13
Lab File ID:	R31620.D	Injection Time:	16:55
Instrument ID:	GCMSR		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	8967	32.6	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
69	Mass 69 relative abundance	9836	35.7	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	12207	44.4	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	27521	100.0	Pass
199	5.0 - 9.0% of mass 198	1711	6.22	Pass
275	10.0 - 30.0% of mass 198	6841	24.9	Pass
365	1.0 - 100.0% of mass 198	673	2.45	Pass
441	Present, but less than mass 443	3761	13.7 (81.3) ^b	Pass
442	40.0 - 100.0% of mass 198	24672	89.6	Pass
443	17.0 - 23.0% of mass 442	4624	16.8 (18.7) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSR1151-CC1128	R31621.D	06/20/13	17:18	00:23	Continuing cal 80
OP33673-MB	R31622.D	06/20/13	17:41	00:46	Method Blank
OP33673-BS	R31623.D	06/20/13	18:04	01:09	Blank Spike
OP33673-MS	R31624.D	06/20/13	18:27	01:32	Matrix Spike
OP33673-MSD	R31625.D	06/20/13	18:50	01:55	Matrix Spike Duplicate
MC21890-1	R31626.D	06/20/13	19:13	02:18	(used for QC only; not part of job JB39747)
OP33661-MB	R31627.D	06/20/13	19:36	02:41	Method Blank
OP33661-BS	R31628.D	06/20/13	19:59	03:04	Blank Spike
OP33661-MS	R31629.D	06/20/13	20:21	03:26	Matrix Spike
OP33661-MSD	R31630.D	06/20/13	20:45	03:50	Matrix Spike Duplicate
ZZZZZZ	R31633.D	06/20/13	21:54	04:59	(unrelated sample)
ZZZZZZ	R31634.D	06/20/13	22:17	05:22	(unrelated sample)
ZZZZZZ	R31635.D	06/20/13	22:40	05:45	(unrelated sample)
ZZZZZZ	R31636.D	06/20/13	23:03	06:08	(unrelated sample)
ZZZZZZ	R31637.D	06/20/13	23:26	06:31	(unrelated sample)
ZZZZZZ	R31638.D	06/20/13	23:49	06:54	(unrelated sample)
ZZZZZZ	R31647.D	06/21/13	03:26	10:31	(unrelated sample)
ZZZZZZ	R31648.D	06/21/13	03:50	10:55	(unrelated sample)
ZZZZZZ	R31649.D	06/21/13	04:15	11:20	(unrelated sample)

9.4.2
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Instrument Performance Check (DFTPP)

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW580-DFTPP	Injection Date:	05/30/13
Lab File ID:	W12578.D	Injection Time:	07:20
Instrument ID:	GCMSW		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	17592	44.7	Pass
68	Less than 2.0% of mass 69	327	0.83 (1.75) ^a	Pass
69	Mass 69 relative abundance	18712	47.6	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	21376	54.4	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	39328	100.0	Pass
199	5.0 - 9.0% of mass 198	2823	7.18	Pass
275	10.0 - 30.0% of mass 198	10085	25.6	Pass
365	1.0 - 100.0% of mass 198	1062	2.70	Pass
441	Present, but less than mass 443	2939	7.47 (71.7) ^b	Pass
442	40.0 - 100.0% of mass 198	19792	50.3	Pass
443	17.0 - 23.0% of mass 442	4099	10.4 (20.7) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW579-IC579	W12580.D	05/30/13	09:02	01:42	Initial cal 2
MSW579-IC579	W12581.D	05/30/13	09:25	02:05	Initial cal 5
MSW579-IC579	W12582.D	05/30/13	10:16	02:56	Initial cal 10
MSW579-IC579	W12583.D	05/30/13	10:40	03:20	Initial cal 20
MSW579-ICC579	W12584.D	05/30/13	11:03	03:43	Initial cal 50
MSW579-IC579	W12585.D	05/30/13	11:26	04:06	Initial cal 80
MSW579-IC579	W12586.D	05/30/13	11:49	04:29	Initial cal 120
MSW579-IC579	W12587.D	05/30/13	12:12	04:52	Initial cal 160
MSW579-ICV579	W12588.D	05/30/13	12:36	05:16	Initial cal verification 50
MSW579-ICV579	W12589.D	05/30/13	12:59	05:39	Initial cal verification 20
MSW579-ICV579	W12590.D	05/30/13	13:22	06:02	Initial cal verification 20
MSW580-ICC580	W12593.D	05/30/13	15:22	08:02	Initial cal 50
MSW580-IC580	W12594.D	05/30/13	15:45	08:25	Initial cal 5
MSW580-IC580	W12595.D	05/30/13	16:08	08:48	Initial cal 10
MSW580-IC580	W12596.D	05/30/13	16:31	09:11	Initial cal 20
MSW580-IC580	W12597.D	05/30/13	16:54	09:34	Initial cal 40
MSW580-IC580	W12598.D	05/30/13	17:18	09:58	Initial cal 80
MSW580-IC580	W12599.D	05/30/13	17:41	10:21	Initial cal 100

9.4.3
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Instrument Performance Check (DFTPP)

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW609-DFTPP	Injection Date:	06/25/13
Lab File ID:	W13308.D	Injection Time:	23:52
Instrument ID:	GCMSW		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	17242	40.6	Pass
68	Less than 2.0% of mass 69	229	0.54 (1.41) ^a	Pass
69	Mass 69 relative abundance	16273	38.3	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	21083	49.6	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	42475	100.0	Pass
199	5.0 - 9.0% of mass 198	2916	6.87	Pass
275	10.0 - 30.0% of mass 198	10669	25.1	Pass
365	1.0 - 100.0% of mass 198	1322	3.11	Pass
441	Present, but less than mass 443	6098	14.4 (76.3) ^b	Pass
442	40.0 - 100.0% of mass 198	40464	95.3	Pass
443	17.0 - 23.0% of mass 442	7989	18.8 (19.7) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW609-CC579	W13309.D	06/26/13	00:15	00:23	Continuing cal 50
OP33746-MB	W13310.D	06/26/13	00:38	00:46	Method Blank
OP33746-BS	W13311.D	06/26/13	01:01	01:09	Blank Spike
OP33746-MS	W13312.D	06/26/13	01:24	01:32	Matrix Spike
OP33746-MSD	W13313.D	06/26/13	01:47	01:55	Matrix Spike Duplicate
JB40205-1	W13314.D	06/26/13	02:10	02:18	(used for QC only; not part of job JB39747)
ZZZZZZ	W13315.D	06/26/13	02:33	02:41	(unrelated sample)
ZZZZZZ	W13316.D	06/26/13	02:56	03:04	(unrelated sample)
ZZZZZZ	W13317.D	06/26/13	03:19	03:27	(unrelated sample)
ZZZZZZ	W13318.D	06/26/13	03:42	03:50	(unrelated sample)
ZZZZZZ	W13319.D	06/26/13	04:05	04:13	(unrelated sample)
ZZZZZZ	W13320.D	06/26/13	04:29	04:37	(unrelated sample)
ZZZZZZ	W13321.D	06/26/13	04:52	05:00	(unrelated sample)
ZZZZZZ	W13322.D	06/26/13	05:16	05:24	(unrelated sample)
ZZZZZZ	W13323.D	06/26/13	05:39	05:47	(unrelated sample)
ZZZZZZ	W13324.D	06/26/13	06:02	06:10	(unrelated sample)
ZZZZZZ	W13325.D	06/26/13	06:25	06:33	(unrelated sample)
ZZZZZZ	W13326.D	06/26/13	06:48	06:56	(unrelated sample)
ZZZZZZ	W13327.D	06/26/13	07:10	07:18	(unrelated sample)

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Instrument Performance Check (DFTPP)

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW609-DFTPP	Injection Date:	06/25/13
Lab File ID:	W13308.D	Injection Time:	23:52
Instrument ID:	GCMSW		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	W13328.D	06/26/13	07:33	07:41	(unrelated sample)
ZZZZZZ	W13329.D	06/26/13	07:56	08:04	(unrelated sample)
ZZZZZZ	W13330.D	06/26/13	08:19	08:27	(unrelated sample)
ZZZZZZ	W13331.D	06/26/13	08:42	08:50	(unrelated sample)
JB39747-1	W13332.D	06/26/13	09:06	09:14	AOI-5_MW-480_0-2'_61413
JB39747-2	W13333.D	06/26/13	09:29	09:37	AOI-5_MW-480_2-4'_61413

Instrument Performance Check (DFTPP)

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW610-DFTPP	Injection Date:	06/26/13
Lab File ID:	W13336.D	Injection Time:	17:39
Instrument ID:	GCMSW		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	24875	33.6	Pass
68	Less than 2.0% of mass 69	293	0.40 (1.03) ^a	Pass
69	Mass 69 relative abundance	28395	38.4	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	35669	48.2	Pass
197	Less than 1.0% of mass 198	274	0.37	Pass
198	Base peak, 100% relative abundance	74037	100.0	Pass
199	5.0 - 9.0% of mass 198	5220	7.05	Pass
275	10.0 - 30.0% of mass 198	17663	23.9	Pass
365	1.0 - 100.0% of mass 198	2050	2.77	Pass
441	Present, but less than mass 443	3777	5.10 (29.9) ^b	Pass
442	40.0 - 100.0% of mass 198	68720	92.8	Pass
443	17.0 - 23.0% of mass 442	12636	17.1 (18.4) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW610-ICC610	W13338.D	06/26/13	18:47	01:08	Initial cal 50
MSW611-CC579	W13338A.D	06/26/13	18:47	01:08	Continuing cal 50
MSW610-IC610	W13339.D	06/26/13	19:10	01:31	Initial cal 2
MSW610-IC610	W13340.D	06/26/13	19:34	01:55	Initial cal 5
MSW610-IC610	W13341.D	06/26/13	19:57	02:18	Initial cal 10
MSW610-IC610	W13342.D	06/26/13	20:20	02:41	Initial cal 20
MSW610-IC610	W13343.D	06/26/13	20:43	03:04	Initial cal 80
MSW610-IC610	W13344.D	06/26/13	21:06	03:27	Initial cal 120
MSW610-IC610	W13345.D	06/26/13	21:29	03:50	Initial cal 160
MSW610-IC610	W13347.D	06/26/13	22:14	04:35	Initial cal 5
MSW610-IC610	W13348.D	06/26/13	22:37	04:58	Initial cal 10
MSW610-IC610	W13349.D	06/26/13	23:01	05:22	Initial cal 20
MSW610-IC610	W13350.D	06/26/13	23:24	05:45	Initial cal 50
MSW610-IC610	W13351.D	06/26/13	23:48	06:09	Initial cal 80
MSW610-IC610	W13352.D	06/27/13	00:11	06:32	Initial cal 120
MSW610-IC610	W13353.D	06/27/13	00:34	06:55	Initial cal 160
ZZZZZZ	W13355.D	06/27/13	01:21	07:42	(unrelated sample)
ZZZZZZ	W13356.D	06/27/13	01:45	08:06	(unrelated sample)
ZZZZZZ	W13357.D	06/27/13	02:08	08:29	(unrelated sample)

9.4.5
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Instrument Performance Check (DFTPP)

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample:	MSW632-DFTPP	Injection Date:	07/16/13
Lab File ID:	W13919.D	Injection Time:	08:10
Instrument ID:	GCMSW		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	20535	31.6	Pass
68	Less than 2.0% of mass 69	341	0.52 (1.32) ^a	Pass
69	Mass 69 relative abundance	25901	39.8	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	32344	49.8	Pass
197	Less than 1.0% of mass 198	427	0.66	Pass
198	Base peak, 100% relative abundance	64997	100.0	Pass
199	5.0 - 9.0% of mass 198	4683	7.20	Pass
275	10.0 - 30.0% of mass 198	16328	25.1	Pass
365	1.0 - 100.0% of mass 198	1564	2.41	Pass
441	Present, but less than mass 443	7572	11.6 (75.8) ^b	Pass
442	40.0 - 100.0% of mass 198	53336	82.1	Pass
443	17.0 - 23.0% of mass 442	9988	15.4 (18.7) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSW632-CC610	W13920.D	07/16/13	08:33	00:23	Continuing cal 80
OP34002-MB	W13921.D	07/16/13	08:56	00:46	Method Blank
OP34002-BS	W13922.D	07/16/13	09:18	01:08	Blank Spike
ZZZZZZ	W13923.D	07/16/13	09:41	01:31	(unrelated sample)
ZZZZZZ	W13925.D	07/16/13	10:27	02:17	(unrelated sample)
ZZZZZZ	W13939.D	07/16/13	15:50	07:40	(unrelated sample)
JB39747-2	W13941.D	07/16/13	16:36	08:26	AOI-5_MW-480_2-4'_61413

9.4.6
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Semivolatiles Internal Standard Area Summary

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	MSR1151-CC1128	Injection Date:	06/20/13
Lab File ID:	R31621.D	Injection Time:	17:18
Instrument ID:	GCMSR	Method:	SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	42701	3.98	159843	5.03	96039	6.55	162281	7.92	186185	10.85	174529	12.43
Upper Limit ^a	85402	4.48	319686	5.53	192078	7.05	324562	8.42	372370	11.35	349058	12.93
Lower Limit ^b	21351	3.48	79922	4.53	48020	6.05	81141	7.42	93093	10.35	87265	11.93

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT								
OP33673-MB	21378	3.98	75973 ^c	5.03	45910 ^c	6.55	78009 ^c	7.92	87795 ^c	10.85	83192 ^c	12.43
OP33673-BS	26105	3.98	99314	5.03	59341	6.55	101926	7.92	113988	10.84	104824	12.43
OP33673-MS	23860	3.98	90684	5.03	54664	6.55	90844	7.92	99808	10.85	96577	12.43
OP33673-MSD	18874 ^d	3.98	69482 ^d	5.03	42041 ^d	6.55	71356 ^d	7.92	78957 ^d	10.85	75485 ^d	12.43
MC21890-1	31187	3.98	118959	5.03	70948	6.55	120300	7.92	132895	10.85	128105	12.43
OP33661-MB	24743	3.98	95953	5.03	56615	6.55	96745	7.92	106451	10.85	100672	12.43
OP33661-BS	24867	3.98	92652	5.03	56079	6.55	93583	7.92	107096	10.85	103209	12.43
OP33661-MS	22691	3.98	85530	5.03	51580	6.55	89374	7.92	100870	10.85	99391	12.43
OP33661-MSD	21981	3.98	83912	5.03	49714	6.55	85150	7.92	96341	10.85	95935	12.43
ZZZZZZ	26404	3.98	103267	5.03	66352	6.56	100440	7.92	112514	10.84	106974	12.43
ZZZZZZ	25184	3.98	95028	5.03	56287	6.55	95463	7.92	105771	10.85	101070	12.43
ZZZZZZ	27094	3.98	103006	5.03	62293	6.55	105187	7.92	124507	10.85	129122	12.43
ZZZZZZ	20581*	3.98	76905*	5.03	45740*	6.55	76711*	7.92	85304*	10.85	82769*	12.43
ZZZZZZ	25219	3.98	94557	5.03	56734	6.55	93804	7.92	102992	10.85	98737	12.43
ZZZZZZ	37806	3.98	141321	5.03	85239	6.55	140852	7.92	154303	10.85	150177	12.43
ZZZZZZ	33203	3.98	128245	5.03	76051	6.55	133954	7.92	144558	10.85	140115	12.43
ZZZZZZ	41117	3.98	168077	5.03	101269	6.55	177327	7.92	200448	10.85	197050	12.43
ZZZZZZ	28459	3.98	105185	5.03	63109	6.55	109358	7.92	121821	10.85	119484	12.43

- IS 1 = 1,4-Dichlorobenzene-d4
- IS 2 = Naphthalene-d8
- IS 3 = Acenaphthene-D10
- IS 4 = Phenanthrene-d10
- IS 5 = Chrysene-d12
- IS 6 = Perylene-d12

- (a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
- (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
- (c) Outside control limits. Results confirmed by reanalysis.
- (d) Outside control limits. Individual spike recoveries within acceptance limits.

9.5.1
9

Semivolatiles Internal Standard Area Summary

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	MSW609-CC579	Injection Date:	06/26/13
Lab File ID:	W13309.D	Injection Time:	00:15
Instrument ID:	GCMSW	Method:	SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT								
Check Std	63901	4.03	256348	5.08	163212	6.61	299218	7.99	336439	10.95	334308	12.53
Upper Limit ^a	127802	4.53	512696	5.58	326424	7.11	598436	8.49	672878	11.45	668616	13.03
Lower Limit ^b	31951	3.53	128174	4.58	81606	6.11	149609	7.49	168220	10.45	167154	12.03

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP33746-MB	63331	4.03	248447	5.08	152689	6.61	268681	7.99	295590	10.94	295657	12.53
OP33746-BS	82254	4.03	315031	5.08	197140	6.61	343965	7.99	363069	10.95	360189	12.53
OP33746-MS	79498	4.04	289184	5.09	180111	6.61	310859	8.00	316821	10.95	313712	12.53
OP33746-MSD	66818	4.03	250726	5.09	158822	6.61	280854	7.99	295708	10.95	305133	12.53
JB40205-1	57428	4.03	220200	5.08	134760	6.61	231319	7.99	244501	10.95	241113	12.53
ZZZZZZ	60871	4.03	237501	5.08	154708	6.61	239104	7.99	321162	10.94	328040	12.53
ZZZZZZ	50022	4.03	196883	5.08	125583	6.61	227311	7.99	258753	10.94	259910	12.53
ZZZZZZ	56573	4.03	218088	5.08	139033	6.61	251188	7.99	289531	10.94	293070	12.53
ZZZZZZ	59257	4.03	231311	5.08	145513	6.61	257841	7.99	296318	10.94	304457	12.53
ZZZZZZ	72109	4.03	281505	5.08	176349	6.61	316591	7.99	370145	10.94	373875	12.53
ZZZZZZ	69187	4.02	273009	5.08	172666	6.61	305735	7.99	357694	10.94	358186	12.53
ZZZZZZ	68646	4.02	263380	5.08	168049	6.61	301105	7.99	351797	10.94	353570	12.53
ZZZZZZ	79083	4.03	306164	5.08	195106	6.61	349207	7.99	398751	10.95	401229	12.53
ZZZZZZ	98368	4.03	372118	5.08	237186	6.61	421017	7.99	471407	10.95	464465	12.53
ZZZZZZ	84879	4.03	325603	5.08	209469	6.61	374207	7.99	408767	10.94	405328	12.53
ZZZZZZ	72664	4.03	286465	5.08	185795	6.61	336057	7.99	376976	10.95	368392	12.53
ZZZZZZ	81534	4.03	320898	5.08	201166	6.61	354433	8.00	381549	10.95	373709	12.53
ZZZZZZ	54109	4.03	198296	5.09	139431	6.62	243101	8.01	267615	10.95	263700	12.53
ZZZZZZ	66674	4.03	266107	5.08	171610	6.61	314132	7.99	353816	10.94	339371	12.53
ZZZZZZ	67030	4.03	269837	5.08	172568	6.61	314189	7.99	343168	10.94	327351	12.53
ZZZZZZ	67157	4.03	264373	5.08	174968	6.61	321958	7.99	357715	10.94	337270	12.53
ZZZZZZ	74993	4.03	195117	5.10	131376	6.65	261215	8.02	299829	10.96	308820	12.54
JB39747-1	53781	4.03	203857	5.08	127714	6.61	223461	7.99	256971	10.95	266421	12.53
JB39747-2	86393	4.03	334395	5.09	209390	6.62	359259	8.01	398004	10.97	387951	12.56

- IS 1 = 1,4-Dichlorobenzene-d4
- IS 2 = Naphthalene-d8
- IS 3 = Acenaphthene-D10
- IS 4 = Phenanthrene-d10
- IS 5 = Chrysene-d12
- IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

9.52
9

Semivolatiles Internal Standard Area Summary

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	MSW632-CC610	Injection Date:	07/16/13
Lab File ID:	W13920.D	Injection Time:	08:33
Instrument ID:	GCMSW	Method:	SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT								
Check Std	110268	3.75	431757	4.80	267920	6.32	455753	7.67	478462	10.57	468410	12.14
Upper Limit ^a	220536	4.25	863514	5.30	535840	6.82	911506	8.17	956924	11.07	936820	12.64
Lower Limit ^b	55134	3.25	215879	4.30	133960	5.82	227877	7.17	239231	10.07	234205	11.64

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT								
OP34002-MB	124786	3.75	474542	4.80	296932	6.32	511097	7.66	542807	10.57	522719	12.15
OP34002-BS	166626	3.75	633207	4.80	399287	6.32	672530	7.67	704665	10.58	693271	12.15
ZZZZZZ	139833	3.75	534996	4.80	339532	6.32	571389	7.66	602000	10.57	564012	12.14
ZZZZZZ	85391	3.75	330489	4.80	208569	6.32	350590	7.66	375934	10.57	365721	12.14
ZZZZZZ	118529	3.75	461578	4.80	289278	6.32	485984	7.66	535390	10.57	510324	12.14
JB39747-2	143535	3.75	549464	4.80	346066	6.32	579346	7.67	637321	10.57	621182	12.15

- IS 1 = 1,4-Dichlorobenzene-d4
- IS 2 = Naphthalene-d8
- IS 3 = Acenaphthene-D10
- IS 4 = Phenanthrene-d10
- IS 5 = Chrysene-d12
- IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

9.5.3
9

Semivolatile Surrogate Recovery Summary

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8270C

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JB39747-1	W13332.D	106.0	83.0	84.0
JB39747-2	W13333.D	377.0* a	87.0	83.0
JB39747-2	W13941.D	60.0	79.0	97.0
OP33673-BS	R31623.D	75.0	87.0	93.0
OP33673-MB	R31622.D	86.0	96.0	102.0
OP33673-MS	R31624.D	82.0	91.0	97.0
OP33673-MSD	R31625.D	80.0	92.0	96.0

Surrogate Compounds Recovery Limits

S1 = Nitrobenzene-d5	30-130%
S2 = 2-Fluorobiphenyl	30-130%
S3 = Terphenyl-d14	30-130%

(a) Outside control limits due to dilution.

Initial Calibration Summary

Job Number: JB39747

Sample: MSR1128-ICC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30970.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report MSR

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu May 30 14:53:36 2013
Response via : Initial Calibration

Calibration Files

160 =R30977.D 120 =R30976.D 80 =R30975.D 20 =R30974.D
5 =R30972.D 2 =R30971.D 10 =R30973.D 50 =R30970.D

Compound	160	120	80	20	5	2	10	50	Avg	%RSD

1) I 1,4-Dichlorobenzene-d	-----ISTD-----									
2) N-nitrosodim	0.804	0.758	0.796	0.844	0.808		0.825	0.807	0.806	3.31
3) Pyridine	1.452	1.367	1.453	1.536	1.436		1.445	1.492	1.455	3.57
4) Aniline		0.735	0.804	0.829	0.848	0.835	0.829	0.790	0.810	4.76
5) 2-Fluorophen	1.324	1.295	1.322	1.391	1.282	1.275	1.296	1.286	1.309	2.89
6) bis(2-Chloro	0.982	0.966	1.006	1.049	1.022	0.999	1.047	1.020	1.011	2.89
7) Phenol-d5	1.714	1.664	1.688	1.757	1.612	1.614	1.694	1.716	1.683	3.00
8) Phenol	1.887	1.832	1.742	1.759	1.693	1.635	1.723	1.772	1.755	4.47
9) 2-Chlorophen	1.458	1.415	1.465	1.483	1.452	1.412	1.447	1.467	1.450	1.73
10) 1,3-Dichloro	1.556	1.498	1.555	1.580	1.542	1.569	1.587	1.584	1.559	1.87
11) 1,4-Dichloro	1.635	1.591	1.644	1.626	1.646	1.608	1.671	1.649	1.634	1.53
12) 1,2-Dichloro	1.502	1.438	1.494	1.478	1.505	1.438	1.516	1.518	1.486	2.17
13) Benzyl alcoh	0.825	0.791	0.814	0.790	0.707		0.700	0.817	0.778	6.76
14) bis(2-chloro	1.514	1.494	1.576	1.570	1.678	1.607	1.642	1.653	1.592	4.13
15) o-cresol	1.242	1.206	1.256	1.271	1.272	1.127	1.318	1.324	1.252	5.07
16) Acetophenone	1.980	1.910	1.927	1.940	1.976	1.991	1.971	2.018	1.964	1.83
17) Hexachloroet	0.616	0.589	0.611	0.584	0.596	0.590	0.605	0.628	0.602	2.56
18) N-Nitroso-di	0.962	0.920	0.974	0.951	0.936	0.978	0.974	1.005	0.963	2.74
19) m+p-cresols	1.362	1.308	1.330	1.321	1.321	1.274	1.364	1.383	1.333	2.65
20) 4-methylphen	1.362	1.308	1.330	1.321	1.321	1.274	1.364	1.383	1.333	2.65

21) I 1,4-Dichlorobenzene-d	-----ISTD-----									
22) Benzaldehyde	3.741	3.832	3.823	3.758			3.802	3.789	3.791	0.94

23) I Naphthalene-d8	-----ISTD-----									
24) Nitrobenzene	0.394	0.392	0.400	0.405	0.388	0.399	0.411	0.397	0.398	1.83
25) Nitrobenzene	0.391	0.383	0.400	0.400	0.401	0.391	0.413	0.399	0.397	2.20
26) Isophorone	0.679	0.668	0.693	0.694	0.689	0.702	0.721	0.707	0.694	2.38
27) 2-Nitropheno	0.202	0.196	0.201	0.201	0.184		0.196	0.202	0.197	3.23
28) 2,4-Dimethyl	0.371	0.360	0.377	0.382	0.367		0.397	0.377	0.376	3.14
29) bis(2-Chloro	0.408	0.394	0.411	0.405	0.407		0.429	0.415	0.410	2.56
30) Benzoic acid	0.295	0.283	0.285	0.241			0.206	0.282	0.265	13.07
31) 2,4-Dichloro	0.319	0.306	0.314	0.315	0.305		0.311	0.322	0.313	2.05
32) 1,2,4-Trichl	0.336	0.327	0.337	0.343	0.341	0.350	0.353	0.337	0.341	2.40
33) Naphthalene	1.070	1.054	1.072	1.072	1.065	1.062	1.115	1.089	1.075	1.78
34) 2,6-Dichloro	0.311	0.302	0.312	0.311	0.309		0.317	0.315	0.311	1.62
35) 4-Chloroanil	0.456	0.441	0.457	0.453	0.443		0.472	0.465	0.455	2.41
36) Hexachlorobu	0.198	0.196	0.204	0.205	0.201	0.200	0.205	0.205	0.202	1.75
37) 4-Chloro-3-m	0.315	0.304	0.304	0.297	0.313		0.313	0.317	0.309	2.37
38) 2-Methylnaph	0.720	0.710	0.699	0.709	0.790	0.728	0.745	0.741	0.730	3.94
39) 1-Methylnaph	0.695	0.680	0.675	0.690	0.732	0.738	0.717	0.701	0.704	3.30
40) 1,2,4,5-Tetr	0.367	0.364	0.362	0.379	0.399	0.387	0.398	0.373	0.378	3.90

41) I Naphthalene-d8a	-----ISTD-----									
42) Caprolactam	0.125	0.120	0.107	0.082			0.100	0.112	0.108	14.21

9.7.1
9

Initial Calibration Summary

Job Number: JB39747

Sample: MSR1128-ICC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30970.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Table with columns for compound name, ISTD, and numerical values. Rows include Acenaphthene-d10, Phenanthrene-d10, and Chrysene-d12 among others.

9.7.1 9

Initial Calibration Summary

Job Number: JB39747

Sample: MSR1128-ICC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30970.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

98) Dibenz[a,h]a	0.987	1.065	1.133	1.262	1.171	0.901	1.041	1.317	1.110	12.55
99) Benzo[g,h,i]	0.955	1.061	1.140	1.282	1.210	0.889	1.095	1.325	1.120	13.57

(#) = Out of Range ### Number of calibration levels exceeded format ###

R130530_8270+.m

Fri May 31 12:37:32 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30978.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R13030\R30978.D Vial: 8
 Acq On : 30 May 2013 11:35 am Operator: kristinr
 Sample : ICV1128-50 Inst : MSR
 Misc : op33100,msr1128,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 14:53:36 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	71	0.00	4.20
2	N-nitrosodimethylamine			-----NA-----			
3 T	Pyridine			-----NA-----			
4 T	Aniline			-----NA-----			
5 S	2-Fluorophenol	1.309	1.281	2.1	71	0.00	3.26
6 T	bis(2-Chloroethyl)ether			-----NA-----			
7 S	Phenol-d5	1.683	1.557	7.5	65	0.00	3.94
8 C	Phenol	1.755	1.681	4.2	68	0.00	3.95
9 M	2-Chlorophenol	1.450	1.408	2.9	68	0.00	4.07
10 T	1,3-Dichlorobenzene			-----NA-----			
11 C	1,4-Dichlorobenzene			-----NA-----			
12 T	1,2-Dichlorobenzene			-----NA-----			
13 T	Benzyl alcohol			-----NA-----			
14 T	bis(2-chloroisopropyl)eth			-----NA-----			
15 T	o-cresol	1.252	1.212	3.2	65	0.00	4.42
16 T	Acetophenone			-----NA-----			
17 T	Hexachloroethane			-----NA-----			
18 P	N-Nitroso-di-n-propylamin			-----NA-----			
19 T	m+p-cresols	1.333	1.298	2.6	67	0.00	4.54
20	4-methylphenol	1.333	1.298	2.6	67	0.00	4.54
21 I	1,4-Dichlorobenzene-d4A			-----NA-----			
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	68	0.00	5.25
24 S	Nitrobenzene-d5			-----NA-----			
25 T	Nitrobenzene			-----NA-----			
26 T	Isophorone			-----NA-----			
27 C	2-Nitrophenol	0.197	0.194	1.5	66	0.00	4.95
28 T	2,4-Dimethylphenol	0.376	0.369	1.9	67	0.00	4.97
29 T	bis(2-Chloroethoxy)methan			-----NA-----			
30 T	Benzoic acid	0.265	0.288	-8.7	70	-0.02	5.06
31 C	2,4-Dichlorophenol	0.313	0.301	3.8	64	0.00	5.14
32 M	1,2,4-Trichlorobenzene			-----NA-----			
33 T	Naphthalene			-----NA-----			
34 T	2,6-Dichlorophenol	0.311	0.307	1.3	67	0.00	5.34
35 T	4-Chloroaniline			-----NA-----			
36 C	Hexachlorobutadiene			-----NA-----			
37 C	4-Chloro-3-methylphenol	0.309	0.302	2.3	65	0.00	5.75
38 T	2-Methylnaphthalene			-----NA-----			
39 T	1-Methylnaphthalene			-----NA-----			
40 T	1,2,4,5-Tetrachlorobenzen			-----NA-----			

9.7.2
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30978.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a							
42		Caprolactam							
43	I	Acenaphthene-d10	1.000	1.000	0.0	65	0.00	6.79	
44	T	Pentachloronitrobenzene							
45	P	Hexachlorocyclopentadiene							
46	C	2,4,6-Trichlorophenol	0.405	0.409	-1.0	63	0.00	6.13	
47	T	2,4,5-Trichlorophenol	0.424	0.446	-5.2	65	0.00	6.17	
48	S	2-Fluorobiphenyl							
49	T	2-Chloronaphthalene							
50	M	Acenaphthylene							
51	T	Dimethylphthalate							
52	T	2,4-Dinitrotoluene							
53	C	Acenaphthene							
54	P	2,4-Dinitrophenol	0.199	0.167	16.1	53	0.00	6.85	
55	T	Dibenzofuran							
56	M	2,6-Dinitrotoluene							
57	P	4-Nitrophenol	0.266	0.267	-0.4	64	0.00	6.91	
58	T	2,3,4,6-Tetrachlorophenol							
59	T	Fluorene							
60	T	4-Chlorophenyl-phenylethe							
61	T	Diethylphthalate							
62	T	2-nitroaniline							
63	T	3-nitroaniline							
64	T	4-nitroaniline							
65		Acenaphthene-d10a							
66		1,1'-Biphenyl							
67	I	Phenanthrene-d10	1.000	1.000	0.0	66	0.00	8.18	
68	T	4,6-Dinitro-2-methylpheno							
69	C	n-Nitrosodiphenylamine							
70	T	1,2-Diphenylhydrazine							
71	S	2,4,6-Tribromophenol	0.129	0.116	10.1	57	0.00	7.52	
72	T	4-Bromophenyl-phenylether							
73	T	Hexachlorobenzene							
74	C	Pentachlorophenol	0.168	0.169	-0.6	64	0.00	8.06	
75	T	Phenanthrene							
76	T	Anthracene							
77	T	Carbazole							
78	T	Di-n-butylphthalate							
79	C	Fluoranthene							
80	I	Phenanthrene-d10a							
81		Atrazine							
82	I	Chrysene-d12	1.000	1.000	0.0	73	0.00	11.14	
83	T	Benzidine							
84	M	Pyrene							
85	S	Terphenyl-d14							
86		3,3-Dimethylbenzidine							
87	T	Butylbenzylphthalate							
88	T	3,3'-Dichlorobenzidine							
89	T	Benzo[a]anthracene							
90	T	Chrysene							
91	T	bis(2-Ethylhexyl)phthalat							
92	I	Perylene-d12	1.000	1.000	0.0	66	0.00	12.74	
93	C	Di-n-octylphthalate							

9.7.2
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30978.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	-----NA-----
95	T	Benzo[k]fluoranthene	-----NA-----
96	C	Benzo[a]pyrene	-----NA-----
97	T	Indeno[1,2,3-cd]pyrene	-----NA-----
98	T	Dibenz[a,h]anthracene	-----NA-----
99	T	Benzo[g,h,i]perylene	-----NA-----

(#) = Out of Range

SPCC's out = 2 CCC's out = 7

R30970.D R130530_8270+.m

Thu May 30 14:55:23 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30979.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R13030\R30979.D Vial: 9
 Acq On : 30 May 2013 12:01 pm Operator: kristinr
 Sample : ICV1128-20 Inst : MSR
 Misc : op33100,msr1128,,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 14:53:36 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	4.20
2	N-nitrosodimethylamine	0.806	0.898	-11.4	106	0.00	2.38
3 T	Pyridine	1.455	1.511	-3.8	98	0.01	2.39
4 T	Aniline			-----NA-----			
5 S	2-Fluorophenol			-----NA-----			
6 T	bis(2-Chloroethyl)ether	1.011	1.026	-1.5	97	0.00	4.01
7 S	Phenol-d5			-----NA-----			
8 C	Phenol			-----NA-----			
9 M	2-Chlorophenol			-----NA-----			
10 T	1,3-Dichlorobenzene	1.559	1.624	-4.2	102	0.00	4.18
11 C	1,4-Dichlorobenzene	1.634	1.687	-3.2	103	0.00	4.22
12 T	1,2-Dichlorobenzene	1.486	1.556	-4.7	105	0.00	4.37
13 T	Benzyl alcohol	0.778	0.749	3.7	94	0.00	4.33
14 T	bis(2-chloroisopropyl)eth	1.592	1.942	-22.0#	123	0.00	4.44
15 T	o-cresol			-----NA-----			
16 T	Acetophenone	1.964	1.890	3.8	97	0.00	4.54
17 T	Hexachloroethane	0.602	0.647	-7.5	110	0.00	4.61
18 P	N-Nitroso-di-n-propylamin	0.963	1.003	-4.2	105	-0.01	4.55
19 T	m+p-cresols			-----NA-----			
20	4-methylphenol			-----NA-----			
21 I	1,4-Dichlorobenzene-d4A			-----NA-----			
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	103	0.00	5.25
24 S	Nitrobenzene-d5	0.398	0.385	3.3	97	0.00	4.67
25 T	Nitrobenzene	0.397	0.392	1.3	100	0.00	4.69
26 T	Isophorone	0.694	0.673	3.0	99	0.00	4.87
27 C	2-Nitrophenol			-----NA-----			
28 T	2,4-Dimethylphenol			-----NA-----			
29 T	bis(2-Chloroethoxy)methan	0.410	0.414	-1.0	105	0.00	5.05
30 T	Benzoic acid			-----NA-----			
31 C	2,4-Dichlorophenol			-----NA-----			
32 M	1,2,4-Trichlorobenzene	0.341	0.357	-4.7	107	0.00	5.22
33 T	Naphthalene	1.075	1.106	-2.9	106	0.00	5.27
34 T	2,6-Dichlorophenol			-----NA-----			
35 T	4-Chloroaniline			-----NA-----			
36 C	Hexachlorobutadiene	0.202	0.218	-7.9	109	0.00	5.42
37 C	4-Chloro-3-methylphenol			-----NA-----			
38 T	2-Methylnaphthalene	0.730	0.710	2.7	103	0.00	5.86
39 T	1-Methylnaphthalene	0.704	0.695	1.3	103	0.00	5.95
40 T	1,2,4,5-Tetrachlorobenzen	0.378	0.376	0.5	102	0.00	6.04

9.7.3
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30979.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.271	1.048	17.5	96	-0.01	12.34
95	T	Benzo[k]fluoranthene	1.136	1.143	-0.6	100	0.00	12.37
96	C	Benzo[a]pyrene	1.116	1.051	5.8	103	0.00	12.68
97	T	Indeno[1,2,3-cd]pyrene	1.385	1.431	-3.3	100	-0.01	13.87
98	T	Dibenz[a,h]anthracene	1.110	1.176	-5.9	102	-0.01	13.88
99	T	Benzo[g,h,i]perylene	1.120	1.200	-7.1	102	-0.01	14.18

(#) = Out of Range

SPCC's out = 2 CCC's out = 6

R30974.D R130530_8270+.m

Fri May 31 12:35:15 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30980.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R13030\R30980.D Vial: 10
 Acq On : 30 May 2013 12:24 pm Operator: kristinr
 Sample : ICV1128-20 Inst : MSR
 Misc : op33100,msr1128,,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 14:53:36 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	4.20
2	N-nitrosodimethylamine			NA			
3 T	Pyridine			NA			
4 T	Aniline	0.810	0.756	6.7	85	0.00	3.98
5 S	2-Fluorophenol			NA			
6 T	bis(2-Chloroethyl)ether			NA			
7 S	Phenol-d5			NA			
8 C	Phenol			NA			
9 M	2-Chlorophenol			NA			
10 T	1,3-Dichlorobenzene			NA			
11 C	1,4-Dichlorobenzene			NA			
12 T	1,2-Dichlorobenzene			NA			
13 T	Benzyl alcohol			NA			
14 T	bis(2-chloroisopropyl)eth			NA			
15 T	o-cresol			NA			
16 T	Acetophenone			NA			
17 T	Hexachloroethane			NA			
18 P	N-Nitroso-di-n-propylamin			NA			
19 T	m+p-cresols			NA			
20	4-methylphenol			NA			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	61	-0.07	4.20
22	Benzaldehyde			NA			
23 I	Naphthalene-d8	1.000	1.000	0.0	94	0.00	5.25
24 S	Nitrobenzene-d5			NA			
25 T	Nitrobenzene			NA			
26 T	Isophorone			NA			
27 C	2-Nitrophenol			NA			
28 T	2,4-Dimethylphenol			NA			
29 T	bis(2-Chloroethoxy)methan			NA			
30 T	Benzoic acid			NA			
31 C	2,4-Dichlorophenol			NA			
32 M	1,2,4-Trichlorobenzene			NA			
33 T	Naphthalene			NA			
34 T	2,6-Dichlorophenol			NA			
35 T	4-Chloroaniline	0.455	0.417	8.4	86	0.00	5.34
36 C	Hexachlorobutadiene			NA			
37 C	4-Chloro-3-methylphenol			NA			
38 T	2-Methylnaphthalene			NA			
39 T	1-Methylnaphthalene			NA			
40 T	1,2,4,5-Tetrachlorobenzen			NA			

9.7.4
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30980.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	60	-0.07	5.25
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	89	0.00	6.79
44	T	Pentachloronitrobenzene			-----NA-----			
45	P	Hexachlorocyclopentadiene			-----NA-----			
46	C	2,4,6-Trichlorophenol			-----NA-----			
47	T	2,4,5-Trichlorophenol			-----NA-----			
48	S	2-Fluorobiphenyl			-----NA-----			
49	T	2-Chloronaphthalene			-----NA-----			
50	M	Acenaphthylene			-----NA-----			
51	T	Dimethylphthalate			-----NA-----			
52	T	2,4-Dinitrotoluene			-----NA-----			
53	C	Acenaphthene			-----NA-----			
54	P	2,4-Dinitrophenol			-----NA-----			
55	T	Dibenzofuran			-----NA-----			
56	M	2,6-Dinitrotoluene			-----NA-----			
57	P	4-Nitrophenol			-----NA-----			
58	T	2,3,4,6-Tetrachlorophenol			-----NA-----			
59	T	Fluorene			-----NA-----			
60	T	4-Chlorophenyl-phenylethe			-----NA-----			
61	T	Diethylphthalate			-----NA-----			
62	T	2-nitroaniline			-----NA-----			
63	T	3-nitroaniline			-----NA-----			
64	T	4-nitroaniline			-----NA-----			
65		Acenaphthene-d10a	1.000	1.000	0.0	56	-0.07	6.79
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	94	0.00	8.18
68	T	4,6-Dinitro-2-methylpheno			-----NA-----			
69	C	n-Nitrosodiphenylamine			-----NA-----			
70	T	1,2-Diphenylhydrazine			-----NA-----			
71	S	2,4,6-Tribromophenol			-----NA-----			
72	T	4-Bromophenyl-phenylether			-----NA-----			
73	T	Hexachlorobenzene			-----NA-----			
74	C	Pentachlorophenol			-----NA-----			
75	T	Phenanthrene			-----NA-----			
76	T	Anthracene			-----NA-----			
77	T	Carbazole			-----NA-----			
78	T	Di-n-butylphthalate			-----NA-----			
79	C	Fluoranthene			-----NA-----			
80	I	Phenanthrene-d10a	1.000	1.000	0.0	58	-0.08	8.18
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	90	0.00	11.14
83	T	Benzidine	0.525	0.712	-35.6#	110	0.00	9.64
84	M	Pyrene			-----NA-----			
85	S	Terphenyl-d14			-----NA-----			
86		3,3-Dimethylbenzidine			-----NA-----			
87	T	Butylbenzylphthalate			-----NA-----			
88	T	3,3'-Dichlorobenzidine	0.443	0.420	5.2	85	0.00	11.12
89	T	Benzo[a]anthracene			-----NA-----			
90	T	Chrysene			-----NA-----			
91	T	bis(2-Ethylhexyl)phthalat			-----NA-----			
92	I	Perylene-d12	1.000	1.000	0.0	111	0.00	12.74
93	C	Di-n-octylphthalate			-----NA-----			

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30980.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	-----NA-----
95	T	Benzo[k]fluoranthene	-----NA-----
96	C	Benzo[a]pyrene	-----NA-----
97	T	Indeno[1,2,3-cd]pyrene	-----NA-----
98	T	Dibenz[a,h]anthracene	-----NA-----
99	T	Benzo[g,h,i]perylene	-----NA-----

(#) = Out of Range

SPCC's out = 4 CCC's out = 13

R30974.D R130530_8270+.m

Fri May 31 12:37:23 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1146-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31498.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R130618\R31498.D Vial: 100
 Acq On : 18 Jun 2013 9:30 am Operator: kristinr
 Sample : icv1128-50 Inst : MSR
 Misc : op33604,msr1146,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Tue Jun 25 14:19:44 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	61	0.06	4.03
2	N-nitrosodimethylamine			NA			
3 T	Pyridine			NA			
4 T	Aniline			NA			
5 S	2-Fluorophenol			NA			
6 T	bis(2-Chloroethyl)ether			NA			
7 S	Phenol-d5			NA			
8 C	Phenol			NA			
9 M	2-Chlorophenol			NA			
10 T	1,3-Dichlorobenzene			NA			
11 C	1,4-Dichlorobenzene			NA			
12 T	1,2-Dichlorobenzene			NA			
13 T	Benzyl alcohol			NA			
14 T	bis(2-chloroisopropyl)eth			NA			
15 T	o-cresol			NA			
16 T	Acetophenone			NA			
17 T	Hexachloroethane			NA			
18 P	N-Nitroso-di-n-propylamin			NA			
19 T	m+p-cresols			NA			
20	4-methylphenol			NA			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	73	0.06	4.03
22	Benzaldehyde			NA			
23 I	Naphthalene-d8	1.000	1.000	0.0	60	0.06	5.08
24 S	Nitrobenzene-d5			NA			
25 T	Nitrobenzene			NA			
26 T	Isophorone			NA			
27 C	2-Nitrophenol			NA			
28 T	2,4-Dimethylphenol			NA			
29 T	bis(2-Chloroethoxy)methan			NA			
30 T	Benzoic acid			NA			
31 C	2,4-Dichlorophenol			NA			
32 M	1,2,4-Trichlorobenzene			NA			
33 T	Naphthalene			NA			
34 T	2,6-Dichlorophenol			NA			
35 T	4-Chloroaniline			NA			
36 C	Hexachlorobutadiene			NA			
37 C	4-Chloro-3-methylphenol			NA			
38 T	2-Methylnaphthalene			NA			
39 T	1-Methylnaphthalene			NA			
40 T	1,2,4,5-Tetrachlorobenzen			NA			

9.7.5
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1146-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31498.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	77	0.06	5.08
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	60	0.06	6.60
44	T	Pentachloronitrobenzene			-----NA-----			
45	P	Hexachlorocyclopentadiene			-----NA-----			
46	C	2,4,6-Trichlorophenol			-----NA-----			
47	T	2,4,5-Trichlorophenol			-----NA-----			
48	S	2-Fluorobiphenyl			-----NA-----			
49	T	2-Chloronaphthalene			-----NA-----			
50	M	Acenaphthylene			-----NA-----			
51	T	Dimethylphthalate			-----NA-----			
52	T	2,4-Dinitrotoluene			-----NA-----			
53	C	Acenaphthene			-----NA-----			
54	P	2,4-Dinitrophenol			-----NA-----			
55	T	Dibenzofuran			-----NA-----			
56	M	2,6-Dinitrotoluene			-----NA-----			
57	P	4-Nitrophenol			-----NA-----			
58	T	2,3,4,6-Tetrachlorophenol			-----NA-----			
59	T	Fluorene			-----NA-----			
60	T	4-Chlorophenyl-phenylethe			-----NA-----			
61	T	Diethylphthalate			-----NA-----			
62	T	2-nitroaniline			-----NA-----			
63	T	3-nitroaniline			-----NA-----			
64	T	4-nitroaniline			-----NA-----			
65		Acenaphthene-d10a	1.000	1.000	0.0	75	0.06	6.60
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	63	0.06	7.97
68	T	4,6-Dinitro-2-methylpheno			-----NA-----			
69	C	n-Nitrosodiphenylamine			-----NA-----			
70	T	1,2-Diphenylhydrazine			-----NA-----			
71	S	2,4,6-Tribromophenol			-----NA-----			
72	T	4-Bromophenyl-phenylether			-----NA-----			
73	T	Hexachlorobenzene			-----NA-----			
74	C	Pentachlorophenol			-----NA-----			
75	T	Phenanthrene			-----NA-----			
76	T	Anthracene			-----NA-----			
77	T	Carbazole			-----NA-----			
78	T	Di-n-butylphthalate			-----NA-----			
79	C	Fluoranthene			-----NA-----			
80	I	Phenanthrene-d10a	1.000	1.000	0.0	76	0.06	7.97
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	76	0.08	10.91
83	T	Benzidine			-----NA-----			
84	M	Pyrene			-----NA-----			
85	S	Terphenyl-d14			-----NA-----			
86		3,3-Dimethylbenzidine	0.626	0.745	-19.0	95	0.08	10.27
87	T	Butylbenzylphthalate			-----NA-----			
88	T	3,3'-Dichlorobenzidine			-----NA-----			
89	T	Benzo[a]anthracene			-----NA-----			
90	T	Chrysene			-----NA-----			
91	T	bis(2-Ethylhexyl)phthalat			-----NA-----			
92	I	Perylene-d12	1.000	1.000	0.0	81	0.07	12.50
93	C	Di-n-octylphthalate			-----NA-----			

Initial Calibration Verification

Job Number: JB39747

Sample: MSR1146-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31498.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene			-----NA-----			
95	T	Benzo[k]fluoranthene			-----NA-----			
96	C	Benzo[a]pyrene			-----NA-----			
97	T	Indeno[1,2,3-cd]pyrene			-----NA-----			
98	T	Dibenz[a,h]anthracene			-----NA-----			
99	T	Benzo[g,h,i]perylene			-----NA-----			
100		Naphthalene-d8b	1.000	1.000	0.0	57	0.08	5.08
101		o-Toluic Acid			-----NA-----			
			----- Amount	Calc.	%Drift			
102		m-Toluic Acid			-----NA-----			
			----- AvgRF	CCRF	%Dev			
103		p-Toluic Acid			-----NA-----			

(#) = Out of Range
 R31732.D R130530_8270+.m

SPCC's out = 4 CCC's out = 13
 Thu Jun 27 19:00:28 2013

Continuing Calibration Summary

Job Number: JB39747

Sample: MSR1151-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31621.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R130620\R31621.D Vial: 100
 Acq On : 20 Jun 2013 5:18 pm Operator: kristinr
 Sample : cc1128-80 Inst : MSR
 Misc : op33689,msr1151,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : W:\1\methods\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Tue Jun 25 14:19:44 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	68	-0.05	3.98
2	N-nitrosodimethylamine	0.806	0.709	12.0	61	-0.04	2.15
3 T	Pyridine	1.455	1.337	8.1	63	-0.04	2.16
4 T	Aniline	0.810	0.729	10.0	62	-0.05	3.76
5 S	2-Fluorophenol	1.309	1.195	8.7	62	-0.04	3.06
6 T	bis(2-Chloroethyl)ether	1.011	0.825	18.4	56	-0.05	3.80
7 S	Phenol-d5	1.683	1.541	8.4	62	-0.05	3.74
8 C	Phenol	1.755	1.602	8.7	63	-0.05	3.75
9 M	2-Chlorophenol	1.450	1.342	7.4	62	-0.05	3.85
10 T	1,3-Dichlorobenzene	1.559	1.482	4.9	65	-0.05	3.95
11 C	1,4-Dichlorobenzene	1.634	1.550	5.1	64	-0.05	3.99
12 T	1,2-Dichlorobenzene	1.486	1.397	6.0	64	-0.05	4.15
13 T	Benzyl alcohol	0.778	0.249	68.0#	21#	-0.05	4.11
14 T	bis(2-chloroisopropyl)eth	1.592	1.211	23.9#	52	-0.05	4.22
15 T	o-cresol	1.252	1.210	3.4	66	-0.05	4.22
16 T	Acetophenone	1.964	1.747	11.0	62	-0.05	4.32
17 T	Hexachloroethane	0.602	0.549	8.8	61	-0.05	4.39
18 P	N-Nitroso-di-n-propylamin	0.963	0.798	17.1	56	-0.05	4.34
19 T	m+p-cresols	1.333	1.233	7.5	63	-0.05	4.33
20	4-methylphenol	1.333	1.233	7.5	63	-0.05	4.33
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	40#	-0.05	3.98
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	68	-0.05	5.03
24 S	Nitrobenzene-d5	0.398	0.351	11.8	59	-0.05	4.45
25 T	Nitrobenzene	0.397	0.344	13.4	58	-0.05	4.47
26 T	Isophorone	0.694	0.605	12.8	59	-0.05	4.65
27 C	2-Nitrophenol	0.197	0.191	3.0	65	-0.05	4.73
28 T	2,4-Dimethylphenol	0.376	0.341	9.3	61	-0.05	4.76
29 T	bis(2-Chloroethoxy)methan	0.410	0.368	10.2	61	-0.05	4.84
30 T	Benzoic acid	0.265	0.238	10.2	57	-0.04	4.87
31 C	2,4-Dichlorophenol	0.313	0.304	2.9	65	-0.05	4.93
32 M	1,2,4-Trichlorobenzene	0.341	0.327	4.1	66	-0.05	5.00
33 T	Naphthalene	1.075	1.029	4.3	65	-0.05	5.05
34 T	2,6-Dichlorophenol	0.311	0.281	9.6	61	-0.05	5.12
35 T	4-Chloroaniline	0.455	0.435	4.4	64	-0.05	5.12
36 C	Hexachlorobutadiene	0.202	0.202	0.0	67	-0.05	5.19
37 C	4-Chloro-3-methylphenol	0.309	0.274	11.3	61	-0.05	5.53
38 T	2-Methylnaphthalene	0.730	0.716	1.9	69	-0.05	5.63
39 T	1-Methylnaphthalene	0.704	0.677	3.8	68	-0.05	5.73
40 T	1,2,4,5-Tetrachlorobenzen	0.378	0.368	2.6	69	-0.05	5.82

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Continuing Calibration Summary

Job Number: JB39747

Sample: MSR1151-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31621.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	39#	-0.05	5.03
42		Caprolactam				-----NA-----		
43	I	Acenaphthene-d10	1.000	1.000	0.0	68	-0.05	6.55
44	T	Pentachloronitrobenzene	0.181	0.168	7.2	63	-0.06	7.88
45	P	Hexachlorocyclopentadiene	0.364	0.284	22.0#	51	-0.05	5.83
46	C	2,4,6-Trichlorophenol	0.405	0.364	10.1	64	-0.05	5.91
47	T	2,4,5-Trichlorophenol	0.424	0.395	6.8	66	-0.05	5.94
48	S	2-Fluorobiphenyl	1.408	1.333	5.3	69	-0.05	5.97
49	T	2-Chloronaphthalene	1.157	1.100	4.9	68	-0.05	6.06
50	M	Acenaphthylene	1.880	1.799	4.3	68	-0.05	6.42
51	T	Dimethylphthalate	1.365	1.262	7.5	66	-0.05	6.35
52	T	2,4-Dinitrotoluene	0.404	0.376	6.9	61	-0.05	6.76
53	C	Acenaphthene	1.252	1.133	9.5	62	-0.05	6.58
54	P	2,4-Dinitrophenol	0.199	0.173	13.1	57	-0.05	6.63
55	T	Dibenzofuran	1.721	1.594	7.4	62	-0.05	6.72
56	M	2,6-Dinitrotoluene	0.309	0.298	3.6	66	-0.05	6.42
57	P	4-Nitrophenol	0.266	0.181	32.0#	45#	-0.05	6.70
58	T	2,3,4,6-Tetrachlorophenol	0.357	0.318	10.9	59	-0.05	6.87
59	T	Fluorene	1.382	1.293	6.4	63	-0.05	7.03
60	T	4-Chlorophenyl-phenylethe	0.690	0.646	6.4	64	-0.05	7.03
61	T	Diethylphthalate	1.330	1.214	8.7	62	-0.05	6.97
62	T	2-nitroaniline	0.392	0.378	3.6	66	-0.05	6.18
63	T	3-nitroaniline	0.346	0.321	7.2	65	-0.05	6.55
64	T	4-nitroaniline	0.348	0.323	7.2	61	-0.05	7.10
65		Acenaphthene-d10a	1.000	1.000	0.0	40#	-0.05	6.55
66		1,1'-Biphenyl				-----NA-----		
67	I	Phenanthrene-d10	1.000	1.000	0.0	65	-0.05	7.92
68	T	4,6-Dinitro-2-methylpheno	0.151	0.147	2.6	61	-0.05	7.13
69	C	n-Nitrosodiphenylamine	0.584	0.553	5.3	63	-0.05	7.15
70	T	1,2-Diphenylhydrazine	0.863	0.738	14.5	56	-0.05	7.17
71	S	2,4,6-Tribromophenol	0.129	0.120	7.0	63	-0.05	7.27
72	T	4-Bromophenyl-phenylether	0.245	0.234	4.5	64	-0.06	7.47
73	T	Hexachlorobenzene	0.261	0.255	2.3	66	-0.05	7.63
74	C	Pentachlorophenol	0.168	0.133	20.8#	51	-0.06	7.80
75	T	Phenanthrene	1.180	1.110	5.9	63	-0.05	7.95
76	T	Anthracene	1.228	1.169	4.8	63	-0.06	7.99
77	T	Carbazole	1.100	1.045	5.0	61	-0.06	8.16
78	T	Di-n-butylphthalate	1.311	1.261	3.8	61	-0.06	8.57
79	C	Fluoranthene	1.206	1.216	-0.8	63	-0.06	9.20
80	I	Phenanthrene-d10a	1.000	1.000	0.0	38#	-0.05	7.92
81		Atrazine				-----NA-----		
82	I	Chrysene-d12	1.000	1.000	0.0	81	-0.06	10.85
83	T	Benzidine	0.525	0.514	2.1	78	-0.06	9.37
84	M	Pyrene	1.306	1.134	13.2	62	-0.06	9.45
85	S	Terphenyl-d14	0.901	0.852	5.4	68	-0.06	9.64
86		3,3-Dimethylbenzidine	0.626	0.531	15.2	72	-0.06	10.21
87	T	Butylbenzylphthalate	0.523	0.474	9.4	64	-0.06	10.25
88	T	3,3'-Dichlorobenzidine	0.443	0.430	2.9	75	-0.06	10.84
89	T	Benzo[a]anthracene	1.110	1.042	6.1	74	-0.06	10.83
90	T	Chrysene	1.080	1.011	6.4	75	-0.06	10.88
91	T	bis(2-Ethylhexyl)phthalat	0.769	0.685	10.9	74	-0.06	10.94
92	I	Perylene-d12	1.000	1.000	0.0	82	-0.06	12.43
93	C	Di-n-octylphthalate	1.311	1.201	8.4	74	-0.06	11.63

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Continuing Calibration Summary

Job Number: JB39747

Sample: MSR1151-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31621.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.271	1.318	-3.7	80	-0.06	12.05
95	T	Benzo[k]fluoranthene	1.136	1.059	6.8	76	-0.06	12.07
96	C	Benzo[a]pyrene	1.116	1.083	3.0	77	-0.06	12.37
97	T	Indeno[1,2,3-cd]pyrene	1.385	1.342	3.1	79	-0.08	13.50
98	T	Dibenz[a,h]anthracene	1.110	1.065	4.1	77	-0.08	13.50
99	T	Benzo[g,h,i]perylene	1.120	1.105	1.3	80	-0.08	13.78
100		Naphthalene-d8b	1.000	1.000	0.0	52	-0.05	5.03
101		o-Toluic Acid					NA	
			Amount	Calc.	%Drift			
102		m-Toluic Acid					NA	
			AvgRF	CCRF	%Dev			
103		p-Toluic Acid					NA	

(#) = Out of Range
R31733.D R130530_8270+.m

SPCC's out = 0 CCC's out = 1
Wed Jul 17 14:14:39 2013

9.7.6
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Initial Calibration Summary

Job Number: JB39747

Sample: MSW579-ICC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12584.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report MSW

Method : C:\msdchem\1\met...\W130530_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu May 30 18:03:11 2013
Response via : Initial Calibration

Calibration Files

160 =w12587.D 120 =w12586.D 80 =w12585.D 20 =w12583.D
5 =w12581.D 2 =w12580.D 10 =w12582.D 50 =w12584.D

Compound	160	120	80	20	5	2	10	50	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	-----ISTD-----									
2) N-nitrosodim	0.622	0.609	0.636	0.633	0.609		0.653	0.637	0.628	2.59
3) Pyridine	1.104	1.099	1.162	1.188	1.297		1.209	1.191	1.179	5.74
4) Aniline		0.504	0.541	0.589	0.572	0.544	0.588	0.574	0.559	5.52
5) 2-Fluorophen	1.096	1.081	1.070	1.092	1.036	1.084	1.121	1.086	1.083	2.23
6) bis(2-Chloro	0.652	0.651	0.671	0.682	0.686	0.660	0.714	0.684	0.675	3.12
7) Phenol-d5	1.355	1.336	1.312	1.354	1.233	1.250	1.371	1.349	1.320	3.90
8) Phenol	1.516	1.391	1.437	1.423	1.334	1.302	1.421	1.440	1.408	4.71
9) 2-Chlorophen	1.292	1.264	1.297	1.297	1.249	1.295	1.313	1.304	1.289	1.67
10) 1,3-Dichloro	1.452	1.434	1.467	1.488	1.495	1.488	1.547	1.501	1.484	2.31
11) 1,4-Dichloro	1.527	1.517	1.561	1.564	1.573	1.587	1.659	1.559	1.568	2.77
12) 1,2-Dichloro	1.404	1.393	1.438	1.451	1.434	1.407	1.488	1.437	1.431	2.13
13) Benzyl alcoh	0.814	0.801	0.813	0.788	0.739		0.803	0.824	0.798	3.51
14) bis(2-chloro	0.857	0.850	0.878	0.908	0.902	0.845	0.959	0.899	0.887	4.28
15) o-cresol	1.086	1.062	1.106	1.118	1.059	1.041	1.133	1.125	1.091	3.14
16) Acetophenone	1.670	1.679	1.665	1.765	1.688	1.694	1.824	1.759	1.718	3.35
17) Hexachloroet	0.486	0.476	0.493	0.494	0.493	0.478	0.516	0.504	0.493	2.62
18) N-Nitroso-di	0.735	0.719	0.743	0.723	0.621		0.751	0.757	0.721	6.43
19) m+p-cresols	1.191	1.172	1.178	1.211	1.132	1.107	1.225	1.214	1.179	3.50
20) 4-methylphen	1.191	1.172	1.178	1.211	1.132	1.107	1.225	1.214	1.179	3.50
21) I 1,4-Dichlorobenzene-d	-----ISTD-----									
22) Benzaldehyde								0.000#		-1.00
23) I Naphthalene-d8	-----ISTD-----									
24) Nitrobenzene	0.309	0.301	0.298	0.307	0.269	0.256	0.315	0.309	0.295	7.23
25) Nitrobenzene	0.304	0.298	0.309	0.316	0.292	0.271	0.326	0.319	0.304	5.68
26) Isophorone	0.550	0.538	0.559	0.575	0.565	0.562	0.591	0.580	0.565	3.02
27) 2-Nitropheno	0.205	0.198	0.204	0.198	0.170		0.197	0.204	0.196	6.26
28) 2,4-Dimethyl	0.329	0.317	0.330	0.341	0.330		0.339	0.341	0.332	2.62
29) bis(2-Chloro	0.348	0.342	0.350	0.358	0.364		0.373	0.359	0.356	2.93
30) Benzoic acid	0.276	0.259	0.266	0.213			0.174	0.259	0.241	16.39
---- Linear regression ---- Coefficient = 0.9990										
Response Ratio = -0.02657 + 0.27590 *A										
31) 2,4-Dichloro	0.346	0.340	0.347	0.348	0.338		0.344	0.356	0.345	1.77
32) 1,2,4-Trichl	0.373	0.365	0.379	0.383	0.388	0.391	0.399	0.388	0.383	2.75
33) Naphthalene	0.983	0.981	1.015	1.042	1.049	1.059	1.093	1.041	1.033	3.69
34) 2,6-Dichloro	0.336	0.330	0.342	0.348	0.336		0.353	0.352	0.342	2.62
35) 4-Chloroanil	0.434	0.426	0.441	0.448	0.422		0.446	0.457	0.439	2.84
36) Hexachlorobu	0.238	0.235	0.246	0.251	0.257	0.256	0.260	0.253	0.249	3.62
37) 4-Chloro-3-m	0.298	0.288	0.296	0.300	0.279		0.302	0.306	0.295	3.13
38) 2-Methylnaph	0.746	0.727	0.758	0.787	0.768	0.761	0.814	0.785	0.768	3.51
39) 1-Methylnaph	0.703	0.704	0.715	0.755	0.740	0.747	0.779	0.751	0.737	3.69
40) 1,2,4,5-Tetr	0.454	0.453	0.459	0.489	0.472	0.492	0.502	0.483	0.475	3.99

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Initial Calibration Summary

Job Number: JB39747

Sample: MSW579-ICC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12584.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41)	I	Naphthalene-d8a	-----ISTD-----									
42)		Caprolactam	0.000# -1.00									
43)	I	Acenaphthene-d10	-----ISTD-----									
44)		Pentachloron	0.186	0.182	0.183	0.183		0.180	0.196	0.185	3.10	
45)		Hexachlorocy	0.420	0.409	0.447	0.398	0.361	0.406	0.438	0.411	6.92	
46)		2,4,6-Trichl	0.435	0.426	0.437	0.434	0.430	0.441	0.452	0.436	1.91	
47)		2,4,5-Trichl	0.464	0.446	0.470	0.463	0.447	0.473	0.485	0.464	3.04	
48)		2-Fluorobiph	1.311	1.307	1.330	1.386	1.373	1.407	1.471	1.400	1.373	4.05
49)		2-Chloronaph	1.059	1.047	1.088	1.097	1.121	1.100	1.140	1.122	1.097	2.89
50)		Acenaphthyle	1.699	1.679	1.790	1.821	1.828	1.784	1.879	1.868	1.794	4.05
51)		Dimethylphth	1.304	1.277	1.339	1.362	1.360	1.335	1.411	1.396	1.348	3.30
52)		2,4-Dinitrot	0.403	0.390	0.403	0.380		0.376	0.415	0.394	3.83	
53)		Acenaphthene	1.061	1.051	1.097	1.121	1.146	1.116	1.164	1.146	1.113	3.67
54)		2,4-Dinitrop	0.247	0.234	0.240	0.195			0.233	0.230	8.81	
55)		Dibenzofuran	1.636	1.613	1.696	1.744	1.756	1.745	1.788	1.778	1.720	3.79
56)		2,6-Dinitrot	0.305	0.300	0.312	0.286		0.277	0.317	0.299	5.11	
57)		4-Nitropheno	0.183	0.180	0.184	0.183		0.173	0.194	0.183	3.61	
58)		2,3,4,6-Tetr	0.457	0.444	0.463	0.461	0.452	0.476	0.486	0.463	3.07	
59)		Fluorene	1.274	1.261	1.334	1.374	1.401	1.379	1.429	1.405	1.357	4.57
60)		4-Chlorophen	0.711	0.708	0.763	0.783	0.792	0.764	0.802	0.803	0.766	4.96
61)		Diethylphtha	1.177	1.155	1.212	1.226	1.248	1.209	1.272	1.265	1.221	3.36
62)		2-nitroanili	0.353	0.339	0.346	0.307		0.295	0.347	0.331	7.26	
63)		3-nitroanili	0.302	0.292	0.298	0.287		0.278	0.309	0.294	3.77	
64)		4-nitroanili	0.305	0.294	0.299	0.286		0.271	0.313	0.295	5.01	
65)		Acenaphthene-d10a	-----ISTD-----									
66)		1,1'-Bipheny	0.000# -1.00									
67)	I	Phenanthrene-d10	-----ISTD-----									
68)		4,6-Dinitro-	0.169	0.162	0.167	0.147		0.144	0.164	0.159	6.70	
69)		n-Nitrosodip	0.497	0.491	0.519	0.525	0.520	0.566	0.546	0.532	0.524	4.67
70)		1,2-Diphenyl	0.521	0.442	0.467	0.474	0.488	0.483	0.496	0.480	0.481	4.70
71)		2,4,6-Tribro	0.166	0.165	0.163	0.159	0.146		0.166	0.164	0.161	4.34
72)		4-Bromopheny	0.270	0.265	0.278	0.273	0.278	0.260	0.292	0.284	0.275	3.71
73)		Hexachlorobe	0.291	0.288	0.305	0.302	0.302	0.300	0.317	0.306	0.301	3.00
74)		Pentachlorop	0.225	0.218	0.222	0.208		0.211	0.224	0.218	3.21	
75)		Phenanthrene	1.017	1.009	1.061	1.094	1.107	1.124	1.153	1.097	1.083	4.65
76)		Anthracene	1.046	1.057	1.105	1.159	1.162	1.136	1.209	1.175	1.131	5.08
77)		Carbazole	0.928	0.922	0.948	0.989	0.989	0.947	1.024	1.009	0.969	3.96
78)		Di-n-butylph	1.062	1.056	1.107	1.086	1.074		1.147	1.135	1.095	3.24
79)		Fluoranthene	1.184	1.192	1.243	1.296	1.292	1.262	1.362	1.308	1.267	4.75
80)	I	Phenanthrene-d10a	-----ISTD-----									
81)		Atrazine	0.000# -1.00									
82)	I	Chrysene-d12	-----ISTD-----									
83)		Benzidine	0.259	0.250	0.285	0.268		0.241	0.284	0.264	6.83	
84)		Pyrene	1.027	1.004	1.068	1.087	1.068	1.007	1.125	1.102	1.061	4.19
85)		Terphenyl-d1	0.895	0.874	0.909	0.953	0.917	0.876	0.994	0.956	0.922	4.60
86)		3,3-Dimethyl	0.402	0.386	0.438	0.414	0.270		0.404	0.444	0.394	14.79
87)		Butylbenzylp	0.352	0.333	0.348	0.302	0.262		0.300	0.338	0.319	10.18
88)		3,3'-Dichlor	0.429	0.422	0.441	0.399	0.317		0.391	0.446	0.406	10.89
89)		Benzo[a]anth	0.996	0.992	1.044	1.081	1.084	1.047	1.119	1.094	1.057	4.34
90)		Chrysene	0.985	0.960	1.016	1.050	1.066	1.045	1.082	1.057	1.033	4.07
91)		bis(2-Ethylh	0.537	0.516	0.540	0.460	0.385		0.459	0.522	0.489	11.62
92)	I	Perylene-d12	-----ISTD-----									
93)		Di-n-octylph	0.810	0.837	0.840	0.738	0.546		0.682	0.815	0.753	14.37
94)		Benzo[b]fluo	1.343	1.313	1.306	1.177	1.064	0.992	1.211	1.189	1.199	10.30

Initial Calibration Summary

Job Number: JB39747

Sample: MSW579-ICC579

Account: ALNJ Accutest New Jersey

Lab FileID: W12584.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

95) Benzo[k]fluo	1.079	1.092	1.061	1.239	1.264	1.220	1.260	1.252	1.183	7.55
96) Benzo[a]pyre	1.052	1.038	1.103	1.135	1.005	0.925	1.086	1.128	1.059	6.62
97) Indeno[1,2,3	1.434	1.405	1.437	1.392	1.278	1.141	1.387	1.438	1.364	7.64
98) Dibenz[a,h]a	1.166	1.148	1.178	1.156	1.061	0.945	1.156	1.199	1.126	7.43
99) Benzo[g,h,i]	1.183	1.161	1.183	1.138	1.096	1.011	1.161	1.175	1.139	5.19

(#) = Out of Range ### Number of calibration levels exceeded format ###

W130530_8270+.m

Fri May 31 15:37:31 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12588.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\w12588.D Vial: 9
 Acq On : 30 May 2013 12:36 pm Operator: kristinr
 Sample : ICV579-50 Inst : MSW
 Misc : op33225,msw579,,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 18:03:11 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	0.00	4.21
2	N-nitrosodimethylamine			-----NA-----			
3 T	Pyridine			-----NA-----			
4 T	Aniline			-----NA-----			
5 S	2-Fluorophenol	1.083	1.078	0.5	89	0.00	3.26
6 T	bis(2-Chloroethyl)ether			-----NA-----			
7 S	Phenol-d5	1.320	1.259	4.6	83	0.00	3.94
8 C	Phenol	1.408	1.400	0.6	87	0.00	3.95
9 M	2-Chlorophenol	1.289	1.280	0.7	88	0.00	4.07
10 T	1,3-Dichlorobenzene			-----NA-----			
11 C	1,4-Dichlorobenzene			-----NA-----			
12 T	1,2-Dichlorobenzene			-----NA-----			
13 T	Benzyl alcohol			-----NA-----			
14 T	bis(2-chloroisopropyl)eth			-----NA-----			
15 T	o-cresol	1.091	1.090	0.1	86	0.00	4.43
16 T	Acetophenone			-----NA-----			
17 T	Hexachloroethane			-----NA-----			
18 P	N-Nitroso-di-n-propylamin			-----NA-----			
19 T	m+p-cresols	1.179	1.189	-0.8	87	0.00	4.55
20	4-methylphenol	1.179	1.189	-0.8	87	0.00	4.55
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	0#	-0.06	4.21
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	88	0.00	5.27
24 S	Nitrobenzene-d5			-----NA-----			
25 T	Nitrobenzene			-----NA-----			
26 T	Isophorone			-----NA-----			
27 C	2-Nitrophenol	0.196	0.198	-1.0	85	0.00	4.97
28 T	2,4-Dimethylphenol	0.332	0.337	-1.5	87	0.00	4.99
29 T	bis(2-Chloroethoxy)methan			-----NA-----			
30 T	Benzoic acid	50.000	56.295	-12.6	98	-0.01	5.08
31 C	2,4-Dichlorophenol	0.345	0.349	-1.2	86	0.00	5.16
32 M	1,2,4-Trichlorobenzene			-----NA-----			
33 T	Naphthalene			-----NA-----			
34 T	2,6-Dichlorophenol	0.342	0.345	-0.9	86	0.00	5.36
35 T	4-Chloroaniline			-----NA-----			
36 C	Hexachlorobutadiene			-----NA-----			

9.7.8
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12588.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37	C	4-Chloro-3-methylphenol	0.295	0.298	-1.0	86	0.00	5.76
38	T	2-Methyl-naphthalene			-----NA-----			
39	T	1-Methyl-naphthalene			-----NA-----			
40	T	1,2,4,5-Tetrachlorobenzene			-----NA-----			
41	I	Naphthalene-d8a	1.000	1.000	0.0	0#	-0.06	5.27
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	88	0.00	6.81
44	T	Pentachloronitrobenzene			-----NA-----			
45	P	Hexachlorocyclopentadiene			-----NA-----			
46	C	2,4,6-Trichlorophenol	0.436	0.434	0.5	85	0.00	6.15
47	T	2,4,5-Trichlorophenol	0.464	0.482	-3.9	88	0.00	6.18
48	S	2-Fluorobiphenyl			-----NA-----			
49	T	2-Chloronaphthalene			-----NA-----			
50	M	Acenaphthylene			-----NA-----			
51	T	Dimethylphthalate			-----NA-----			
52	T	2,4-Dinitrotoluene			-----NA-----			
53	C	Acenaphthene			-----NA-----			
54	P	2,4-Dinitrophenol	0.230	0.208	9.6	79	0.00	6.87
55	T	Dibenzofuran			-----NA-----			
56	M	2,6-Dinitrotoluene			-----NA-----			
57	P	4-Nitrophenol	0.183	0.197	-7.7	90	0.00	6.93
58	T	2,3,4,6-Tetrachlorophenol	0.463	0.474	-2.4	86	0.00	7.14
59	T	Fluorene			-----NA-----			
60	T	4-Chlorophenyl-phenylether			-----NA-----			
61	T	Diethylphthalate			-----NA-----			
62	T	2-nitroaniline			-----NA-----			
63	T	3-nitroaniline			-----NA-----			
64	T	4-nitroaniline			-----NA-----			
65		Acenaphthene-d10a	1.000	1.000	0.0	0#	-0.05	6.81
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	90	0.00	8.22
68	T	4,6-Dinitro-2-methylpheno	0.159	0.162	-1.9	89	-0.01	7.39
69	C	n-Nitrosodiphenylamine			-----NA-----			
70	T	1,2-Diphenylhydrazine			-----NA-----			
71	S	2,4,6-Tribromophenol	0.161	0.152	5.6	83	0.00	7.55
72	T	4-Bromophenyl-phenylether			-----NA-----			
73	T	Hexachlorobenzene			-----NA-----			
74	C	Pentachlorophenol	0.218	0.234	-7.3	94	0.00	8.09
75	T	Phenanthrene			-----NA-----			
76	T	Anthracene			-----NA-----			
77	T	Carbazole			-----NA-----			
78	T	Di-n-butylphthalate			-----NA-----			
79	C	Fluoranthene			-----NA-----			
80	I	Phenanthrene-d10a	1.000	1.000	0.0	0#	0.00	8.27
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	98	-0.01	11.20
83	T	Benzidine			-----NA-----			
84	M	Pyrene			-----NA-----			
85	S	Terphenyl-d14			-----NA-----			
86		3,3-Dimethylbenzidine			-----NA-----			
87	T	Butylbenzylphthalate			-----NA-----			
88	T	3,3'-Dichlorobenzidine			-----NA-----			
89	T	Benzo[a]anthracene			-----NA-----			
90	T	Chrysene			-----NA-----			

9.7.8
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12588.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91	T	bis(2-Ethylhexyl)phthalat				-----NA-----		
92	I	Perylene-d12	1.000	1.000	0.0	100	0.00	12.79
93	C	Di-n-octylphthalate				-----NA-----		
94	T	Benzo[b]fluoranthene				-----NA-----		
95	T	Benzo[k]fluoranthene				-----NA-----		
96	C	Benzo[a]pyrene				-----NA-----		
97	T	Indeno[1,2,3-cd]pyrene				-----NA-----		
98	T	Dibenz[a,h]anthracene				-----NA-----		
99	T	Benzo[g,h,i]perylene				-----NA-----		

(#) = Out of Range

w12584.D W130530_8270+.m

SPCC's out = 2 CCC's out = 7

Fri May 31 15:20:54 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12589.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\w12589.D Vial: 10
 Acq On : 30 May 2013 12:59 pm Operator: kristinr
 Sample : ICV579-20 Inst : MSW
 Misc : op33225,msw579,,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 18:03:11 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	86	0.00	4.21
2	N-nitrosodimethylamine	0.628	0.652	-3.8	88	0.00	2.35
3 T	Pyridine	1.179	1.137	3.6	82	0.02	2.37
4 T	Aniline			-----NA-----			
5 S	2-Fluorophenol			-----NA-----			
6 T	bis(2-Chloroethyl)ether	0.675	0.679	-0.6	85	0.00	4.02
7 S	Phenol-d5			-----NA-----			
8 C	Phenol			-----NA-----			
9 M	2-Chlorophenol			-----NA-----			
10 T	1,3-Dichlorobenzene	1.484	1.533	-3.3	88	0.00	4.19
11 C	1,4-Dichlorobenzene	1.568	1.591	-1.5	87	0.00	4.22
12 T	1,2-Dichlorobenzene	1.431	1.491	-4.2	88	0.00	4.38
13 T	Benzyl alcohol	0.798	0.799	-0.1	87	0.00	4.33
14 T	bis(2-chloroisopropyl)eth	0.887	1.057	-19.2	100	0.00	4.45
15 T	o-cresol			-----NA-----			
16 T	Acetophenone	1.718	1.695	1.3	82	0.00	4.55
17 T	Hexachloroethane	0.493	0.510	-3.4	88	0.00	4.63
18 P	N-Nitroso-di-n-propylamin	0.721	0.744	-3.2	88	-0.01	4.57
19 T	m+p-cresols			-----NA-----			
20	4-methylphenol			-----NA-----			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	0#	-0.06	4.21
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	86	0.00	5.27
24 S	Nitrobenzene-d5	0.295	0.296	-0.3	83	0.00	4.68
25 T	Nitrobenzene	0.304	0.308	-1.3	84	0.00	4.69
26 T	Isophorone	0.565	0.550	2.7	82	-0.01	4.88
27 C	2-Nitrophenol			-----NA-----			
28 T	2,4-Dimethylphenol			-----NA-----			
29 T	bis(2-Chloroethoxy)methan	0.356	0.363	-2.0	87	0.00	5.07
	----- Amount		Calc.	%Drift			
30 T	Benzoic acid			-----NA-----			
	----- AvgRF		CCRF	%Dev			
31 C	2,4-Dichlorophenol			-----NA-----			
32 M	1,2,4-Trichlorobenzene	0.383	0.404	-5.5	91	0.00	5.23
33 T	Naphthalene	1.033	1.076	-4.2	89	0.00	5.29
34 T	2,6-Dichlorophenol			-----NA-----			
35 T	4-Chloroaniline			-----NA-----			
36 C	Hexachlorobutadiene	0.249	0.259	-4.0	89	0.00	5.44

9.7.9
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12589.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37	C	4-Chloro-3-methylphenol			-----NA-----			
38	T	2-Methylnaphthalene	0.768	0.785	-2.2	86	0.00	5.88
39	T	1-Methylnaphthalene	0.737	0.748	-1.5	85	0.00	5.98
40	T	1,2,4,5-Tetrachlorobenzen	0.475	0.483	-1.7	85	0.00	6.06
41	I	Naphthalene-d8a	1.000	1.000	0.0	0#	-0.06	5.27
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	84	0.00	6.81
44	T	Pentachloronitrobenzene	0.185	0.183	1.1	84	0.00	8.17
45	P	Hexachlorocyclopentadiene	0.411	0.232	43.6#	49#	0.00	6.08
46	C	2,4,6-Trichlorophenol			-----NA-----			
47	T	2,4,5-Trichlorophenol			-----NA-----			
48	S	2-Fluorobiphenyl	1.373	1.399	-1.9	85	0.00	6.22
49	T	2-Chloronaphthalene	1.097	1.190	-8.5	91	0.00	6.30
50	M	Acenaphthylene	1.794	1.501	16.3	69	0.00	6.67
51	T	Dimethylphthalate	1.348	1.399	-3.8	86	0.00	6.60
52	T	2,4-Dinitrotoluene	0.394	0.416	-5.6	92	-0.01	7.01
53	C	Acenaphthene	1.113	1.206	-8.4	91	0.00	6.84
54	P	2,4-Dinitrophenol			-----NA-----			
55	T	Dibenzofuran	1.720	1.792	-4.2	86	0.00	6.98
56	M	2,6-Dinitrotoluene	0.299	0.295	1.3	87	0.00	6.66
57	P	4-Nitrophenol			-----NA-----			
58	T	2,3,4,6-Tetrachlorophenol			-----NA-----			
59	T	Fluorene	1.357	1.495	-10.2	92	0.00	7.30
60	T	4-Chlorophenyl-phenylethe	0.766	0.839	-9.5	90	0.00	7.30
61	T	Diethylphthalate	1.221	1.313	-7.5	90	-0.01	7.24
62	T	2-nitroaniline	0.331	0.335	-1.2	92	0.00	6.42
63	T	3-nitroaniline	0.294	0.264	10.2	77	0.00	6.78
64	T	4-nitroaniline	0.295	0.295	0.0	87	-0.01	7.35
65		Acenaphthene-d10a	1.000	1.000	0.0	0#	-0.26	6.60
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	88	0.00	8.22
68	T	4,6-Dinitro-2-methylpheno			-----NA-----			
69	C	n-Nitrosodiphenylamine	0.524	0.506	3.4	85	0.00	7.41
70	T	1,2-Diphenylhydrazine	0.481	0.451	6.2	84	0.00	7.45
71	S	2,4,6-Tribromophenol			-----NA-----			
72	T	4-Bromophenyl-phenylether	0.275	0.275	0.0	89	0.00	7.77
73	T	Hexachlorobenzene	0.301	0.313	-4.0	91	0.00	7.92
74	C	Pentachlorophenol			-----NA-----			
75	T	Phenanthrene	1.083	1.134	-4.7	91	0.00	8.24
76	T	Anthracene	1.131	1.147	-1.4	87	0.00	8.29
77	T	Carbazole	0.969	1.039	-7.2	93	0.00	8.46
78	T	Di-n-butylphthalate	1.095	1.067	2.6	87	0.00	8.89
79	C	Fluoranthene	1.267	1.437	-13.4	98	0.00	9.53
80	I	Phenanthrene-d10a	1.000	1.000	0.0	0#	0.00	8.27
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	95	0.00	11.20
83	T	Benzidine			-----NA-----			
84	M	Pyrene	1.061	1.071	-0.9	93	0.00	9.78
85	S	Terphenyl-d14	0.922	0.885	4.0	88	0.00	9.98
86		3,3-Dimethylbenzidine			-----NA-----			
87	T	Butylbenzylphthalate	0.319	0.307	3.8	96	0.00	10.60
88	T	3,3'-Dichlorobenzidine			-----NA-----			
89	T	Benzo[a]anthracene	1.057	1.145	-8.3	100	0.00	11.18
90	T	Chrysene	1.033	1.076	-4.2	97	0.00	11.23

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12589.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91	T	bis(2-Ethylhexyl)phthalat	0.489	0.457	6.5	94	0.00	11.32
92	I	Perylene-d12	1.000	1.000	0.0	94	0.00	12.79
93	C	Di-n-octylphthalate	0.753	0.778	-3.3	100	0.00	12.01
94	T	Benzo[b]fluoranthene	1.199	1.230	-2.6	99	0.00	12.40
95	T	Benzo[k]fluoranthene	1.183	1.256	-6.2	96	-0.01	12.42
96	C	Benzo[a]pyrene	1.059	1.015	4.2	84	-0.01	12.73
97	T	Indeno[1,2,3-cd]pyrene	1.364	1.430	-4.8	97	-0.02	13.97
98	T	Dibenz[a,h]anthracene	1.126	1.216	-8.0	99	-0.01	13.98
99	T	Benzo[g,h,i]perylene	1.139	1.192	-4.7	99	-0.01	14.29

(#) = Out of Range

w12583.D W130530_8270+.m

SPCC's out = 2 CCC's out = 6

Fri May 31 15:36:06 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12590.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130530\w12590.D Vial: 11
 Acq On : 30 May 2013 1:22 pm Operator: kristinr
 Sample : ICV579-20 Inst : MSW
 Misc : op33225,msw579,,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 18:03:11 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	83	0.00	4.21
2	N-nitrosodimethylamine			NA			
3 T	Pyridine			NA			
4 T	Aniline	0.559	0.531	5.0	75	0.00	3.98
5 S	2-Fluorophenol			NA			
6 T	bis(2-Chloroethyl)ether			NA			
7 S	Phenol-d5			NA			
8 C	Phenol			NA			
9 M	2-Chlorophenol			NA			
10 T	1,3-Dichlorobenzene			NA			
11 C	1,4-Dichlorobenzene			NA			
12 T	1,2-Dichlorobenzene			NA			
13 T	Benzyl alcohol			NA			
14 T	bis(2-chloroisopropyl)eth			NA			
15 T	o-cresol			NA			
16 T	Acetophenone			NA			
17 T	Hexachloroethane			NA			
18 P	N-Nitroso-di-n-propylamin			NA			
19 T	m+p-cresols			NA			
20	4-methylphenol			NA			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	0#	-0.06	4.21
22	Benzaldehyde			NA			
23 I	Naphthalene-d8	1.000	1.000	0.0	81	0.00	5.27
24 S	Nitrobenzene-d5			NA			
25 T	Nitrobenzene			NA			
26 T	Isophorone			NA			
27 C	2-Nitrophenol			NA			
28 T	2,4-Dimethylphenol			NA			
29 T	bis(2-Chloroethoxy)methan			NA			
		Amount	Calc.	%Drift			
30 T	Benzoic acid			NA			
		AvgRF	CCRF	%Dev			
31 C	2,4-Dichlorophenol			NA			
32 M	1,2,4-Trichlorobenzene			NA			
33 T	Naphthalene			NA			
34 T	2,6-Dichlorophenol			NA			
35 T	4-Chloroaniline	0.439	0.399	9.1	72	0.00	5.35
36 C	Hexachlorobutadiene			NA			

9.7.10
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12590.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37	C	4-Chloro-3-methylphenol							
38	T	2-Methylnaphthalene							
39	T	1-Methylnaphthalene							
40	T	1,2,4,5-Tetrachlorobenzen							
41	I	Naphthalene-d8a	1.000	1.000	0.0	0#	-0.06	5.27	
42		Caprolactam							
43	I	Acenaphthene-d10	1.000	1.000	0.0	78	0.00	6.81	
44	T	Pentachloronitrobenzene							
45	P	Hexachlorocyclopentadiene							
46	C	2,4,6-Trichlorophenol							
47	T	2,4,5-Trichlorophenol							
48	S	2-Fluorobiphenyl							
49	T	2-Chloronaphthalene							
50	M	Acenaphthylene							
51	T	Dimethylphthalate							
52	T	2,4-Dinitrotoluene							
53	C	Acenaphthene							
54	P	2,4-Dinitrophenol							
55	T	Dibenzofuran							
56	M	2,6-Dinitrotoluene							
57	P	4-Nitrophenol							
58	T	2,3,4,6-Tetrachlorophenol							
59	T	Fluorene							
60	T	4-Chlorophenyl-phenylethe							
61	T	Diethylphthalate							
62	T	2-nitroaniline							
63	T	3-nitroaniline							
64	T	4-nitroaniline							
65		Acenaphthene-d10a	1.000	1.000	0.0	0#	-0.05	6.81	
66		1,1'-Biphenyl							
67	I	Phenanthrene-d10	1.000	1.000	0.0	79	0.00	8.22	
68	T	4,6-Dinitro-2-methylpheno							
69	C	n-Nitrosodiphenylamine							
70	T	1,2-Diphenylhydrazine							
71	S	2,4,6-Tribromophenol							
72	T	4-Bromophenyl-phenylether							
73	T	Hexachlorobenzene							
74	C	Pentachlorophenol							
75	T	Phenanthrene							
76	T	Anthracene							
77	T	Carbazole							
78	T	Di-n-butylphthalate							
79	C	Fluoranthene							
80	I	Phenanthrene-d10a	1.000	1.000	0.0	0#	0.00	8.27	
81		Atrazine							
82	I	Chrysene-d12	1.000	1.000	0.0	85	-0.01	11.20	
83	T	Benzidine	0.264	0.405	-53.4#	129	0.00	9.68	
84	M	Pyrene							
85	S	Terphenyl-d14							
86		3,3-Dimethylbenzidine							
87	T	Butylbenzylphthalate							
88	T	3,3'-Dichlorobenzidine	0.406	0.374	7.9	80	0.00	11.17	
89	T	Benzo[a]anthracene							
90	T	Chrysene							

9.7.10
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSW579-ICV579

Account: ALNJ Accutest New Jersey

Lab FileID: W12590.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91	T	bis(2-Ethylhexyl)phthalat			-----NA-----			
92	I	Perylene-d12	1.000	1.000	0.0	88	0.00	12.79
93	C	Di-n-octylphthalate			-----NA-----			
94	T	Benzo[b]fluoranthene			-----NA-----			
95	T	Benzo[k]fluoranthene			-----NA-----			
96	C	Benzo[a]pyrene			-----NA-----			
97	T	Indeno[1,2,3-cd]pyrene			-----NA-----			
98	T	Dibenz[a,h]anthracene			-----NA-----			
99	T	Benzo[g,h,i]perylene			-----NA-----			

(#) = Out of Range

w12583.D W130530_8270+.m

SPCC's out = 4 CCC's out = 13

Fri May 31 15:36:08 2013

Continuing Calibration Summary

Job Number: JB39747

Sample: MSW609-CC579

Account: ALNJ Accutest New Jersey

Lab FileID: W13309.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130625\w13309.D Vial: 15
 Acq On : 26 Jun 2013 12:15 am Operator: kristinr
 Sample : cc579-50 Inst : MSW
 Misc : op33669,msw609,990,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\W130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu Jun 06 09:42:09 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	126	-0.08	4.03
2	N-nitrosodimethylamine			NA			
3 T	Pyridine			NA			
4 T	Aniline			NA			
5 S	2-Fluorophenol			NA			
6 T	bis(2-Chloroethyl)ether			NA			
7 S	Phenol-d5			NA			
8 C	Phenol			NA			
9 M	2-Chlorophenol			NA			
10 T	1,3-Dichlorobenzene			NA			
11 C	1,4-Dichlorobenzene			NA			
12 T	1,2-Dichlorobenzene			NA			
13 T	Benzyl alcohol			NA			
14 T	bis(2-chloroisopropyl)eth			NA			
15 T	o-cresol			NA			
16 T	Acetophenone			NA			
17 T	Hexachloroethane			NA			
18 P	N-Nitroso-di-n-propylamin			NA			
19 T	m+p-cresols			NA			
20	4-methylphenol			NA			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	100	-0.08	4.03
22	Benzaldehyde			NA			
23 I	Naphthalene-d8	1.000	1.000	0.0	133	-0.09	5.08
24 S	Nitrobenzene-d5	0.295	0.389	-31.9#	168	-0.09	4.50
25 T	Nitrobenzene			NA			
26 T	Isophorone			NA			
27 C	2-Nitrophenol			NA			
28 T	2,4-Dimethylphenol			NA			
29 T	bis(2-Chloroethoxy)methan			NA			
	----- Amount	Calc.	%Drift	-----			
30 T	Benzoic acid			NA			
	----- AvgRF	CCRF	%Dev	-----			
31 C	2,4-Dichlorophenol			NA			
32 M	1,2,4-Trichlorobenzene			NA			
33 T	Naphthalene	1.033	1.044	-1.1	134	-0.09	5.10
34 T	2,6-Dichlorophenol			NA			
35 T	4-Chloroaniline			NA			
36 C	Hexachlorobutadiene			NA			

9.7.11
9

Continuing Calibration Summary

Job Number: JB39747

Sample: MSW609-CC579

Account: ALNJ Accutest New Jersey

Lab FileID: W13309.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

37	C	4-Chloro-3-methylphenol								
38	T	2-Methylnaphthalene	0.768	0.699	9.0	119	-0.07	5.69		
39	T	1-Methylnaphthalene	0.737	0.683	7.3	121	-0.07	5.79		
40	T	1,2,4,5-Tetrachlorobenzen								
41	I	Naphthalene-d8a	1.000	1.000	0.0	103	-0.09	5.08		
42		Caprolactam								
43	I	Acenaphthene-d10	1.000	1.000	0.0	122	-0.09	6.61		
44	T	Pentachloronitrobenzene								
45	P	Hexachlorocyclopentadiene								
46	C	2,4,6-Trichlorophenol								
47	T	2,4,5-Trichlorophenol								
48	S	2-Fluorobiphenyl	1.373	1.336	2.7	116	-0.08	6.03		
49	T	2-Chloronaphthalene								
50	M	Acenaphthylene	1.794	1.762	1.8	115	-0.08	6.47		
51	T	Dimethylphthalate								
52	T	2,4-Dinitrotoluene								
53	C	Acenaphthene	1.113	1.077	3.2	114	-0.08	6.64		
54	P	2,4-Dinitrophenol								
55	T	Dibenzofuran	1.720	1.556	9.5	106	-0.08	6.78		
56	M	2,6-Dinitrotoluene								
57	P	4-Nitrophenol								
58	T	2,3,4,6-Tetrachlorophenol								
59	T	Fluorene	1.357	1.266	6.7	110	-0.08	7.09		
60	T	4-Chlorophenyl-phenylethe								
61	T	Diethylphthalate								
62	T	2-nitroaniline								
63	T	3-nitroaniline								
64	T	4-nitroaniline								
65		Acenaphthene-d10a	1.000	1.000	0.0	101	-0.09	6.61		
66		1,1'-Biphenyl								
67	I	Phenanthrene-d10	1.000	1.000	0.0	112	-0.10	7.99		
68	T	4,6-Dinitro-2-methylpheno								
69	C	n-Nitrosodiphenylamine								
70	T	1,2-Diphenylhydrazine								
71	S	2,4,6-Tribromophenol								
72	T	4-Bromophenyl-phenylether								
73	T	Hexachlorobenzene								
74	C	Pentachlorophenol								
75	T	Phenanthrene	1.083	1.088	-0.5	111	-0.05	8.07		
76	T	Anthracene	1.131	1.088	3.8	104	-0.10	8.07		
77	T	Carbazole	0.969	1.000	-3.2	111	-0.09	8.23		
78	T	Di-n-butylphthalate								
79	C	Fluoranthene	1.267	1.206	4.8	103	-0.09	9.29		
80	I	Phenanthrene-d10a	1.000	1.000	0.0	102	-0.10	7.99		
81		Atrazine								
82	I	Chrysene-d12	1.000	1.000	0.0	99	-0.11	10.95		
83	T	Benzidine								
84	M	Pyrene	1.061	1.145	-7.9	103	-0.12	9.54		
85	S	Terphenyl-d14	0.922	0.844	8.5	88	-0.11	9.74		
86		3,3-Dimethylbenzidine								
87	T	Butylbenzylphthalate								
88	T	3,3'-Dichlorobenzidine								
89	T	Benzo[a]anthracene	1.057	1.073	-1.5	97	-0.11	10.92		
90	T	Chrysene	1.033	1.050	-1.6	99	-0.11	10.98		

9.7.11
9

Continuing Calibration Summary

Job Number: JB39747

Sample: MSW609-CC579

Account: ALNJ Accutest New Jersey

Lab FileID: W13309.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

91	T	bis(2-Ethylhexyl)phthalat			-----NA-----			
92	I	Perylene-d12	1.000	1.000	0.0	101	-0.11	12.53
93	C	Di-n-octylphthalate			-----NA-----			
94	T	Benzo[b]fluoranthene	1.199	1.217	-1.5	103	-0.12	12.14
95	T	Benzo[k]fluoranthene	1.183	1.012	14.5	82	-0.12	12.16
96	C	Benzo[a]pyrene	1.059	1.037	2.1	93	-0.12	12.47
97	T	Indeno[1,2,3-cd]pyrene	1.364	1.316	3.5	92	-0.19	13.63
98	T	Dibenz[a,h]anthracene	1.126	1.084	3.7	91	-0.19	13.64
99	T	Benzo[g,h,i]perylene	1.139	1.095	3.9	94	-0.21	13.93

(#) = Out of Range

w12584.D W130530_8270+.m

SPCC's out = 4 CCC's out = 10

Fri Jun 28 14:17:20 2013

Initial Calibration Summary

Job Number: JB39747

Sample: MSW610-ICC610

Account: ALNJ Accutest New Jersey

Lab FileID: W13338.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report MSW

Method : C:\msdchem\1\met...\W130626_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu Jul 04 10:22:09 2013
Response via : Initial Calibration

Calibration Files

160 =w13353.D 120 =w13352.D 80 =w13351.D 20 =w13349.D
5 =w13347.D 2 =w13339.D 10 =w13348.D 50 =w13350.D

Compound	160	120	80	20	5	2	10	50	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	-----ISTD-----									
2) N-nitrosodim	0.955	0.942	0.938	0.962	0.927		0.900	0.879	0.929	3.21
3) Pyridine	1.739	1.716	1.718	1.742	1.704		1.716	1.573	1.701	3.41
4) Aniline	2.207	2.212	2.229	2.318	2.271	2.184	2.237	2.148	2.226	2.34
5) 2-Fluorophen	1.349	1.344	1.322	1.348	1.330	1.299	1.340	1.281	1.327	1.86
6) bis(2-Chloro	1.017	1.005	0.995	1.009	1.029	0.981	1.019	0.963	1.002	2.18
7) Phenol-d5	1.843	1.835	1.833	1.858	1.864	1.752	1.838	1.779	1.825	2.14
8) Phenol	1.929	1.918	1.934	1.955	1.918	1.894	1.898	1.842	1.911	1.78
9) 2-Chlorophen	1.384	1.355	1.346	1.359	1.347	1.331	1.311	1.284	1.340	2.30
10) 1,3-Dichloro	1.516	1.499	1.498	1.542	1.530	1.569	1.530	1.437	1.515	2.57
11) 1,4-Dichloro	1.604	1.586	1.575	1.593	1.625	1.575	1.616	1.501	1.584	2.41
12) 1,2-Dichloro	1.458	1.445	1.434	1.492	1.470	1.444	1.442	1.373	1.445	2.39
13) Benzyl alcoh	1.038	1.002	0.955	1.003	0.894		0.969	0.894	0.965	5.73
14) bis(2-chloro	1.414	1.397	1.403	1.439	1.444	1.454	1.438	1.328	1.415	2.88
15) o-cresol	1.338	1.328	1.325	1.338	1.334	1.288	1.335	1.263	1.319	2.11
16) Acetophenone	2.124	2.115	2.120	2.206	2.227	2.301	2.204	2.079	2.172	3.42
17) Hexachloroet	0.613	0.616	0.609	0.628	0.619	0.640	0.634	0.599	0.620	2.18
18) N-Nitroso-di	1.055	1.041	1.036	1.047	1.059	0.989	1.049	0.988	1.033	2.76
19) m+p-cresols	1.396	1.393	1.398	1.454	1.501	1.400	1.446	1.360	1.419	3.17
20) 4-methylphen	1.396	1.393	1.398	1.454	1.501	1.400	1.446	1.360	1.419	3.17
21) I 1,4-Dichlorobenzene-d	-----ISTD-----									
22) Benzaldehyde		1.225	1.202	1.215			1.230	1.257	1.226	1.68
23) I Naphthalene-d8	-----ISTD-----									
24) Nitrobenzene	0.437	0.432	0.430	0.455	0.442	0.446	0.444	0.421	0.438	2.43
25) Nitrobenzene	0.442	0.440	0.437	0.470	0.453	0.440	0.460	0.421	0.446	3.41
26) Isophorone	0.783	0.763	0.757	0.798	0.780	0.774	0.796	0.738	0.774	2.61
27) 2-Nitropheno	0.195	0.192	0.189	0.188	0.180		0.182	0.177	0.186	3.60
28) 2,4-Dimethyl	0.404	0.400	0.401	0.417	0.391		0.409	0.384	0.401	2.68
29) bis(2-Chloro	0.451	0.441	0.441	0.458	0.460		0.447	0.428	0.447	2.48
30) Benzoic acid	0.350	0.342	0.327	0.303			0.271	0.307	0.317	9.17
31) 2,4-Dichloro	0.305	0.300	0.297	0.309	0.292		0.293	0.289	0.298	2.45
32) 1,2,4-Trichl	0.311	0.311	0.308	0.328	0.318	0.302	0.322	0.302	0.313	2.93
33) Naphthalene	1.026	1.015	1.021	1.086	1.042	1.033	1.046	0.992	1.033	2.66
34) 2,6-Dichloro	0.292	0.288	0.291	0.311	0.291		0.291	0.282	0.292	3.08
35) 4-Chloroanil	0.436	0.435	0.443	0.457	0.438		0.444	0.422	0.439	2.41
36) Hexachlorobu	0.198	0.196	0.200	0.220	0.220	0.212	0.211	0.195	0.206	5.05
37) 4-Chloro-3-m	0.353	0.349	0.349	0.364	0.344		0.360	0.340	0.351	2.44
38) 2-Methylnaph	0.675	0.671	0.671	0.709	0.684	0.670	0.680	0.653	0.677	2.34
39) 1-Methylnaph	0.644	0.649	0.651	0.677	0.680	0.673	0.688	0.640	0.663	2.82
40) 1,2,4,5-Tetr	0.334	0.335	0.343	0.377	0.373	0.368	0.371	0.345	0.356	5.01
41) I Naphthalene-d8a	-----ISTD-----									
42) Caprolactam	0.172	0.169	0.172	0.171	0.161		0.167	0.175	0.169	2.64

9.7.12
9

Initial Calibration Summary

Job Number: JB39747

Sample: MSW610-ICC610

Account: ALNJ Accutest New Jersey

Lab FileID: W13338.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

43)	I	Acenaphthene-d10	-----ISTD-----									
44)		Pentachloron	0.171	0.175	0.172	0.177		0.169	0.169	0.172	1.81	
45)		Hexachlorocy	0.371	0.370	0.362	0.325	0.256	0.288	0.338	0.330	13.43	
46)		2,4,6-Trichl	0.396	0.389	0.388	0.395	0.370	0.377	0.377	0.385	2.56	
47)		2,4,5-Trichl	0.422	0.419	0.420	0.422	0.385	0.414	0.403	0.412	3.31	
48)		2-Fluorobiph	1.280	1.280	1.302	1.363	1.341	1.372	1.353	1.289	1.322	2.93
49)		2-Chloronaph	1.071	1.065	1.081	1.088	1.082	1.073	1.061	1.032	1.069	1.65
50)		Acenaphthyle	1.663	1.680	1.722	1.794	1.737	1.758	1.770	1.690	1.727	2.68
51)		Dimethylphth	1.292	1.285	1.278	1.305	1.296	1.337	1.336	1.247	1.297	2.30
52)		2,4-Dinitrot	0.389	0.385	0.388	0.373	0.337	0.361	0.360	0.370	5.16	
53)		Acenaphthene	1.059	1.052	1.077	1.104	1.061	1.108	1.066	1.043	1.071	2.20
54)		2,4-Dinitrop	0.224	0.217	0.210	0.172			0.186	0.202	10.92	
55)		Dibenzofuran	1.510	1.514	1.513	1.596	1.565	1.554	1.560	1.492	1.538	2.32
56)		2,6-Dinitrot	0.283	0.283	0.289	0.285	0.253	0.266	0.276	0.276	4.58	
57)		4-Nitropheno	0.308	0.305	0.309	0.289		0.267	0.293	0.295	5.54	
58)		2,3,4,6-Tetr	0.355	0.361	0.358	0.366	0.342	0.351	0.348	0.354	2.31	
59)		Fluorene	1.147	1.158	1.214	1.278	1.225	1.270	1.254	1.205	1.219	3.99
60)		4-Chlorophen	0.544	0.561	0.596	0.643	0.638	0.642	0.632	0.592	0.606	6.39
61)		Diethylphtha	1.268	1.275	1.276	1.320	1.293	1.401	1.285	1.220	1.292	4.03
62)		2-nitroanili	0.396	0.387	0.378	0.365	0.328		0.345	0.358	0.365	6.56
63)		3-nitroanili	0.334	0.328	0.321	0.321		0.298	0.305	0.318	4.26	
64)		4-nitroanili	0.340	0.333	0.332	0.321		0.303	0.315	0.324	4.20	
65)		Acenaphthene-d10a	-----ISTD-----									
66)		1,1'-Bipheny	1.270	1.362	1.347	1.374	1.396	1.401	1.410	1.366	3.49	
67)	I	Phenanthrene-d10	-----ISTD-----									
68)		4,6-Dinitro-	0.159	0.157	0.156	0.145		0.129	0.140	0.148	7.98	
69)		n-Nitrosodip	0.519	0.524	0.535	0.563	0.538	0.544	0.548	0.518	0.536	2.91
70)		1,2-Diphenyl	0.896	0.896	0.801	0.854	0.813	0.835	0.809	0.774	0.835	5.32
71)		2,4,6-Tribr	0.119	0.120	0.122	0.129	0.127	0.119	0.119	0.122	3.45	
72)		4-Bromopheny	0.215	0.217	0.222	0.235	0.223	0.229	0.226	0.216	0.223	3.11
73)		Hexachlorobe	0.213	0.212	0.218	0.232	0.238	0.225	0.231	0.210	0.222	4.83
74)		Pentachlorop	0.161	0.158	0.157	0.148		0.133	0.143	0.150	7.03	
75)		Phenanthrene	0.993	1.008	1.018	1.084	1.082	1.065	1.053	1.003	1.038	3.55
76)		Anthracene	0.971	1.003	1.049	1.135	1.113	1.119	1.082	1.026	1.062	5.60
77)		Carbazole	0.960	0.956	0.973	1.030	1.000	0.995	0.981	0.932	0.978	3.10
78)		Di-n-butylph	1.213	1.239	1.244	1.315	1.294	1.266	1.203	1.253	3.25	
79)		Fluoranthene	1.107	1.130	1.146	1.227	1.206	1.201	1.174	1.110	1.163	3.96
80)	I	Phenanthrene-d10a	-----ISTD-----									
81)		Atrazine	0.219	0.224	0.224	0.227		0.218	0.223	0.222	1.51	
82)	I	Chrysene-d12	-----ISTD-----									
83)		Benzidine	0.469	0.472	0.460			0.473	0.443	0.464	2.69	
84)		Pyrene	1.129	1.122	1.154	1.169	1.144	1.177	1.158	1.097	1.144	2.32
85)		Terphenyl-d1	0.823	0.830	0.851	0.884	0.899	0.881	0.900	0.836	0.863	3.66
86)		3,3-Dimethyl	0.615	0.642	0.684			0.680	0.603	0.645	5.71	
87)		Butylbenzylp	0.524	0.512	0.512	0.512	0.515	0.515	0.488	0.511	2.18	
88)		3,3'-Dichlor	0.401	0.406	0.414	0.428	0.403	0.428	0.400	0.412	2.96	
89)		Benzo[a]anth	1.012	1.028	1.050	1.111	1.103	1.145	1.107	1.030	1.073	4.57
90)		Chrysene	1.017	1.019	1.031	1.078	1.076	1.091	1.058	0.999	1.046	3.25
91)		bis(2-Ethylh	0.751	0.741	0.733	0.743	0.706	0.724	0.692	0.727	2.97	
92)	I	Perylene-d12	-----ISTD-----									
93)		Di-n-octylph	1.331	1.321	1.332	1.353	1.270	1.308	1.294	1.316	2.09	
94)		Benzo[b]fluo	1.240	1.195	1.201	1.238	1.286	1.284	1.236	1.132	1.227	4.13
95)		Benzo[k]fluo	1.240	1.035	1.067	1.179	1.083	1.074	1.130	1.127	1.117	6.00
96)		Benzo[a]pyre	1.050	1.047	1.062	1.106	1.078	1.111	1.084	1.031	1.071	2.68
97)		Indeno[1,2,3	1.249	1.229	1.234	1.310	1.237	1.286	1.279	1.226	1.256	2.50

Initial Calibration Verification

Job Number: JB39747

Sample: MSW612-ICV610

Account: ALNJ Accutest New Jersey

Lab FileID: W13363.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130627\w13363.D Vial: 1
Acq On : 27 Jun 2013 8:43 am Operator: kristinr
Sample : icv610-50 Inst : MSW
Misc : op33722,msw612,,,,,1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\W130626_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu Jul 04 10:22:09 2013
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	113	0.00	3.87
2	N-nitrosodimethylamine	0.929	0.982	-5.7	127	0.01	2.02
3 T	Pyridine	1.701	1.714	-0.8	124	0.00	2.02
4 T	Aniline	2.226	1.992	10.5	105	0.00	3.65
5 S	2-Fluorophenol	1.327	1.345	-1.4	119	0.00	2.94
6 T	bis(2-Chloroethyl)ether	1.002	0.996	0.6	117	0.00	3.69
7 S	Phenol-d5	1.825	1.774	2.8	113	0.00	3.63
8 C	Phenol	1.911	2.004	-4.9	123	0.00	3.64
9 M	2-Chlorophenol	1.340	1.414	-5.5	125	0.00	3.74
10 T	1,3-Dichlorobenzene	1.515	1.527	-0.8	121	0.00	3.85
11 C	1,4-Dichlorobenzene	1.584	1.570	0.9	119	0.00	3.89
12 T	1,2-Dichlorobenzene	1.445	1.470	-1.7	121	0.00	4.04
13 T	Benzyl alcohol	0.965	0.880	8.8	112	0.00	4.01
14 T	bis(2-chloroisopropyl)eth	1.415	1.637	-15.7	140	0.00	4.12
15 T	o-cresol	1.319	1.359	-3.0	122	0.00	4.11
16 T	Acetophenone	2.172	2.079	4.3	113	0.00	4.22
17 T	Hexachloroethane	0.620	0.634	-2.3	120	0.00	4.28
18 P	N-Nitroso-di-n-propylamin	1.033	1.054	-2.0	121	0.00	4.24
19 T	m+p-cresols	1.419	1.454	-2.5	121	0.00	4.23
20	4-methylphenol	1.419	1.454	-2.5	121	0.00	4.23
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	105	0.00	3.87
22	Benzaldehyde	1.021	0.589	42.3#	49#	0.00	3.54
23 I	Naphthalene-d8	1.000	1.000	0.0	113	0.00	4.93
24 S	Nitrobenzene-d5	0.438	0.428	2.3	115	0.00	4.34
25 T	Nitrobenzene	0.446	0.438	1.8	118	0.00	4.36
26 T	Isophorone	0.774	0.736	4.9	113	0.00	4.55
27 C	2-Nitrophenol	0.186	0.198	-6.5	127	0.00	4.63
28 T	2,4-Dimethylphenol	0.401	0.434	-8.2	128	0.00	4.66
29 T	bis(2-Chloroethoxy)methan	0.447	0.449	-0.4	119	0.00	4.74
30 T	Benzoic acid	0.317	0.380	-19.9	140	0.00	4.77
31 C	2,4-Dichlorophenol	0.298	0.320	-7.4	126	0.00	4.82
32 M	1,2,4-Trichlorobenzene	0.313	0.325	-3.8	122	0.00	4.89
33 T	Naphthalene	1.033	1.411	-36.6#	161	0.00	4.94
34 T	2,6-Dichlorophenol	0.292	0.314	-7.5	126	0.00	5.02
35 T	4-Chloroaniline	0.439	0.342	22.1#	92	0.00	5.01
36 C	Hexachlorobutadiene	0.206	0.214	-3.9	124	0.00	5.10
37 C	4-Chloro-3-methylphenol	0.351	0.371	-5.7	124	0.00	5.43
38 T	2-Methylnaphthalene	0.677	0.663	2.1	115	0.00	5.53
39 T	1-Methylnaphthalene	0.663	0.641	3.3	113	0.00	5.62
40 T	1,2,4,5-Tetrachlorobenzen	0.356	0.341	4.2	112	0.00	5.71

Initial Calibration Verification

Job Number: JB39747

Sample: MSW612-ICV610

Account: ALNJ Accutest New Jersey

Lab FileID: W13363.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	104	0.00	4.93
42		Caprolactam	0.169	0.175	-3.6	104	-0.02	5.29
43	I	Acenaphthene-d10	1.000	1.000	0.0	116	0.00	6.45
44	T	Pentachloronitrobenzene	0.172	0.165	4.1	113	0.00	7.77
45	P	Hexachlorocyclopentadiene	0.330	0.184	44.2#	63	0.00	5.73
46	C	2,4,6-Trichlorophenol	0.385	0.394	-2.3	121	0.00	5.80
47	T	2,4,5-Trichlorophenol	0.412	0.448	-8.7	129	0.00	5.84
48	S	2-Fluorobiphenyl	1.322	1.321	0.1	119	0.00	5.87
49	T	2-Chloronaphthalene	1.069	1.080	-1.0	121	0.00	5.95
50	M	Acenaphthylene	1.727	1.232	28.7#	84	0.00	6.31
51	T	Dimethylphthalate	1.297	1.237	4.6	115	0.00	6.26
52	T	2,4-Dinitrotoluene	0.370	0.383	-3.5	123	0.00	6.65
53	C	Acenaphthene	1.071	1.082	-1.0	120	0.00	6.47
54	P	2,4-Dinitrophenol	0.202	0.204	-1.0	127	0.00	6.52
55	T	Dibenzofuran	1.538	1.468	4.6	114	0.00	6.61
56	M	2,6-Dinitrotoluene	0.276	0.277	-0.4	116	0.00	6.31
57	P	4-Nitrophenol	0.295	0.310	-5.1	122	0.00	6.59
58	T	2,3,4,6-Tetrachlorophenol	0.354	0.377	-6.5	125	0.00	6.77
59	T	Fluorene	1.219	1.248	-2.4	120	0.00	6.92
60	T	4-Chlorophenyl-phenylethe	0.606	0.608	-0.3	119	0.00	6.92
61	T	Diethylphthalate	1.292	1.280	0.9	122	0.00	6.88
62	T	2-nitroaniline	0.365	0.368	-0.8	119	0.00	6.07
63	T	3-nitroaniline	0.318	0.240	24.5#	91	0.00	6.43
64	T	4-nitroaniline	0.324	0.305	5.9	112	0.00	6.98
65		Acenaphthene-d10a	1.000	1.000	0.0	105	0.00	6.45
66		1,1'-Biphenyl	1.195	1.314	-10.0	98	0.00	5.94
67	I	Phenanthrene-d10	1.000	1.000	0.0	114	0.00	7.80
68	T	4,6-Dinitro-2-methylpheno	0.148	0.164	-10.8	134	0.00	7.02
69	C	n-Nitrosodiphenylamine	0.536	0.494	7.8	109	0.00	7.04
70	T	1,2-Diphenylhydrazine	0.835	0.790	5.4	117	0.00	7.07
71	S	2,4,6-Tribromophenol	0.122	0.117	4.1	112	0.00	7.16
72	T	4-Bromophenyl-phenylether	0.223	0.216	3.1	114	0.00	7.37
73	T	Hexachlorobenzene	0.222	0.223	-0.5	121	0.00	7.52
74	C	Pentachlorophenol	0.150	0.163	-8.7	130	0.00	7.69
75	T	Phenanthrene	1.038	1.038	0.0	118	0.00	7.83
76	T	Anthracene	1.062	1.033	2.7	115	0.00	7.87
77	T	Carbazole	0.978	0.952	2.7	117	0.00	8.04
78	T	Di-n-butylphthalate	1.253	1.187	5.3	113	0.00	8.48
79	C	Fluoranthene	1.163	1.179	-1.4	121	0.00	9.09
80	I	Phenanthrene-d10a	1.000	1.000	0.0	102	0.00	7.80
81		Atrazine	0.191	0.224	-17.3	103	0.00	7.58
82	I	Chrysene-d12	1.000	1.000	0.0	113	0.00	10.73
83	T	Benzidine	0.464	0.402	13.4	102	0.00	9.25
84	M	Pyrene	1.144	1.116	2.4	115	0.00	9.33
85	S	Terphenyl-d14	0.863	0.819	5.1	110	0.00	9.54
86		3,3-Dimethylbenzidine			-----NA-----			
87	T	Butylbenzylphthalate	0.511	0.512	-0.2	118	0.00	10.16
88	T	3,3'-Dichlorobenzidine	0.412	0.260	36.9#	73	0.00	10.72
89	T	Benzo[a]anthracene	1.073	1.108	-3.3	121	0.00	10.71
90	T	Chrysene	1.046	1.021	2.4	115	0.00	10.76
91	T	bis(2-Ethylhexyl)phthalat	0.727	0.712	2.1	116	0.00	10.88
92	I	Perylene-d12	1.000	1.000	0.0	113	0.00	12.31
93	C	Di-n-octylphthalate	1.316	1.335	-1.4	116	0.00	11.57

Initial Calibration Verification

Job Number: JB39747

Sample: MSW612-ICV610

Account: ALNJ Accutest New Jersey

Lab FileID: W13363.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.227	1.240	-1.1	123	0.00	11.92
95	T	Benzo[k]fluoranthene	1.117	1.053	5.7	105	0.00	11.94
96	C	Benzo[a]pyrene	1.071	0.967	9.7	106	0.00	12.25
97	T	Indeno[1,2,3-cd]pyrene	1.256	1.263	-0.6	116	0.00	13.36
98	T	Dibenz[a,h]anthracene	1.020	1.045	-2.5	117	0.00	13.37
99	T	Benzo[g,h,i]perylene	1.040	1.053	-1.2	118	0.00	13.63
100		Naphthalene-d8b	1.000	1.000	0.0	104	0.00	4.93
101		o-Toluic Acid	0.235	0.082	65.1#	34#	-0.12	5.10
			----- Amount	Calc.	%Drift	-----		
102		m-Toluic Acid	50.000	132.243	-164.5#	326	-0.41	4.93
			----- AvgRF	CCRF	%Dev	-----		
103		p-Toluic Acid	0.364	0.010#	97.3#	3#	0.15	5.53

(#) = Out of Range
w13350.D W130626_8270+.m

SPCC's out = 0 CCC's out = 0
Thu Jul 04 10:32:03 2013

Initial Calibration Verification

Job Number: JB39747

Sample: MSW627-ICV610

Account: ALNJ Accutest New Jersey

Lab FileID: W13754.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130709\w13754.D Vial: 3
 Acq On : 9 Jul 2013 3:09 pm Operator: kristinr
 Sample : ICV610-50 Inst : MSW
 Misc : OP33892,MSW627,,,,,1,1 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : W:\1\methods\W130626_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu Jul 11 14:07:03 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	167	-0.06	3.81
2	N-nitrosodimethylamine			NA			
3 T	Pyridine			NA			
4 T	Aniline			NA			
5 S	2-Fluorophenol			NA			
6 T	bis(2-Chloroethyl)ether			NA			
7 S	Phenol-d5			NA			
8 C	Phenol			NA			
9 M	2-Chlorophenol			NA			
10 T	1,3-Dichlorobenzene			NA			
11 C	1,4-Dichlorobenzene			NA			
12 T	1,2-Dichlorobenzene			NA			
13 T	Benzyl alcohol			NA			
14 T	bis(2-chloroisopropyl)eth			NA			
15 T	o-cresol			NA			
16 T	Acetophenone			NA			
17 T	Hexachloroethane			NA			
18 P	N-Nitroso-di-n-propylamin			NA			
19 T	m+p-cresols			NA			
20	4-methylphenol			NA			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	154	-0.06	3.81
22	Benzaldehyde			NA			
23 I	Naphthalene-d8	1.000	1.000	0.0	173	-0.07	4.86
24 S	Nitrobenzene-d5			NA			
25 T	Nitrobenzene			NA			
26 T	Isophorone			NA			
27 C	2-Nitrophenol			NA			
28 T	2,4-Dimethylphenol			NA			
29 T	bis(2-Chloroethoxy)methan			NA			
30 T	Benzoic acid			NA			
31 C	2,4-Dichlorophenol			NA			
32 M	1,2,4-Trichlorobenzene			NA			
33 T	Naphthalene			NA			
34 T	2,6-Dichlorophenol			NA			
35 T	4-Chloroaniline			NA			
36 C	Hexachlorobutadiene			NA			
37 C	4-Chloro-3-methylphenol			NA			
38 T	2-Methylnaphthalene			NA			
39 T	1-Methylnaphthalene			NA			
40 T	1,2,4,5-Tetrachlorobenzen			NA			

9.7.14
9

Initial Calibration Verification

Job Number: JB39747

Sample: MSW627-ICV610

Account: ALNJ Accutest New Jersey

Lab FileID: W13754.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	159	-0.07	4.86
42		Caprolactam					-----NA-----	
43	I	Acenaphthene-d10	1.000	1.000	0.0	171	-0.07	6.38
44	T	Pentachloronitrobenzene					-----NA-----	
45	P	Hexachlorocyclopentadiene					-----NA-----	
46	C	2,4,6-Trichlorophenol					-----NA-----	
47	T	2,4,5-Trichlorophenol					-----NA-----	
48	S	2-Fluorobiphenyl					-----NA-----	
49	T	2-Chloronaphthalene					-----NA-----	
50	M	Acenaphthylene					-----NA-----	
51	T	Dimethylphthalate					-----NA-----	
52	T	2,4-Dinitrotoluene					-----NA-----	
53	C	Acenaphthene					-----NA-----	
54	P	2,4-Dinitrophenol					-----NA-----	
55	T	Dibenzofuran					-----NA-----	
56	M	2,6-Dinitrotoluene					-----NA-----	
57	P	4-Nitrophenol					-----NA-----	
58	T	2,3,4,6-Tetrachlorophenol					-----NA-----	
59	T	Fluorene					-----NA-----	
60	T	4-Chlorophenyl-phenylethe					-----NA-----	
61	T	Diethylphthalate					-----NA-----	
62	T	2-nitroaniline					-----NA-----	
63	T	3-nitroaniline					-----NA-----	
64	T	4-nitroaniline					-----NA-----	
65		Acenaphthene-d10a	1.000	1.000	0.0	155	-0.07	6.38
66		1,1'-Biphenyl					-----NA-----	
67	I	Phenanthrene-d10	1.000	1.000	0.0	169	-0.08	7.72
68	T	4,6-Dinitro-2-methylpheno					-----NA-----	
69	C	n-Nitrosodiphenylamine					-----NA-----	
70	T	1,2-Diphenylhydrazine					-----NA-----	
71	S	2,4,6-Tribromophenol					-----NA-----	
72	T	4-Bromophenyl-phenylether					-----NA-----	
73	T	Hexachlorobenzene					-----NA-----	
74	C	Pentachlorophenol					-----NA-----	
75	T	Phenanthrene					-----NA-----	
76	T	Anthracene					-----NA-----	
77	T	Carbazole					-----NA-----	
78	T	Di-n-butylphthalate					-----NA-----	
79	C	Fluoranthene					-----NA-----	
80	I	Phenanthrene-d10a	1.000	1.000	0.0	151	-0.08	7.72
81		Atrazine					-----NA-----	
82	I	Chrysene-d12	1.000	1.000	0.0	162	-0.10	10.64
83	T	Benzidine					-----NA-----	
84	M	Pyrene					-----NA-----	
85	S	Terphenyl-d14					-----NA-----	
86		3,3-Dimethylbenzidine	0.645	0.779	-20.8#	209#	-0.09	10.01
87	T	Butylbenzylphthalate					-----NA-----	
88	T	3,3'-Dichlorobenzidine					-----NA-----	
89	T	Benzo[a]anthracene					-----NA-----	
90	T	Chrysene					-----NA-----	
91	T	bis(2-Ethylhexyl)phthalat					-----NA-----	
92	I	Perylene-d12	1.000	1.000	0.0	157	-0.10	12.21
93	C	Di-n-octylphthalate					-----NA-----	

9.7.14

9

Initial Calibration Verification

Job Number: JB39747

Sample: MSW627-ICV610

Account: ALNJ Accutest New Jersey

Lab FileID: W13754.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene							
95	T	Benzo[k]fluoranthene							
96	C	Benzo[a]pyrene							
97	T	Indeno[1,2,3-cd]pyrene							
98	T	Dibenz[a,h]anthracene							
99	T	Benzo[g,h,i]perylene							
100		Naphthalene-d8b	1.000	1.000	0.0	159	-0.07	4.86	
101		o-Toluic Acid							
			Amount	Calc.	%Drift				
102		m-Toluic Acid							
			AvgRF	CCRF	%Dev				
103		p-Toluic Acid							

(#) = Out of Range
 w13350.D W130626_8270+.m

SPPC's out = 4 CCC's out = 13
 Wed Jul 17 10:12:12 2013

Continuing Calibration Summary

Job Number: JB39747

Sample: MSW632-CC610

Account: ALNJ Accutest New Jersey

Lab FileID: W13920.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\2\DATA\W130716\W13920.D Vial: 100
 Acq On : 16 Jul 2013 8:33 am Operator: kristinr
 Sample : CC610-80 Inst : MSW
 Misc : OP33982,MSW632,,,,,1,1 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : W:\1\methods\W130626_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu Jul 11 14:07:03 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	122	-0.12	3.75
2	N-nitrosodimethylamine	0.929	1.021	-9.9	133	-0.11	1.91
3 T	Pyridine	1.701	1.764	-3.7	125	-0.11	1.91
4 T	Aniline	2.226	2.189	1.7	120	-0.11	3.54
5 S	2-Fluorophenol	1.327	1.399	-5.4	129	-0.11	2.83
6 T	bis(2-Chloroethyl)ether	1.002	0.885	11.7	109	-0.11	3.58
7 S	Phenol-d5	1.825	1.797	1.5	120	-0.11	3.52
8 C	Phenol	1.911	1.918	-0.4	121	-0.11	3.53
9 M	2-Chlorophenol	1.340	1.419	-5.9	129	-0.11	3.62
10 T	1,3-Dichlorobenzene	1.515	1.572	-3.8	128	-0.12	3.73
11 C	1,4-Dichlorobenzene	1.584	1.634	-3.2	127	-0.12	3.77
12 T	1,2-Dichlorobenzene	1.445	1.486	-2.8	126	-0.12	3.92
13 T	Benzyl alcohol	0.965	1.001	-3.7	128	-0.11	3.89
14 T	bis(2-chloroisopropyl)eth	1.415	1.038	26.6#	90	-0.11	4.01
15 T	o-cresol	1.319	1.324	-0.4	122	-0.11	3.99
16 T	Acetophenone	2.172	2.092	3.7	120	-0.12	4.10
17 T	Hexachloroethane	0.620	0.598	3.5	120	-0.12	4.17
18 P	N-Nitroso-di-n-propylamin	1.033	1.012	2.0	119	-0.12	4.12
19 T	m+p-cresols	1.419	1.396	1.6	122	-0.11	4.12
20	4-methylphenol	1.419	1.396	1.6	122	-0.11	4.12
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	125	-0.12	3.75
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	123	-0.12	4.80
24 S	Nitrobenzene-d5	0.438	0.421	3.9	121	-0.12	4.22
25 T	Nitrobenzene	0.446	0.418	6.3	118	-0.12	4.24
26 T	Isophorone	0.774	0.756	2.3	123	-0.11	4.43
27 C	2-Nitrophenol	0.186	0.194	-4.3	126	-0.12	4.51
28 T	2,4-Dimethylphenol	0.401	0.386	3.7	119	-0.11	4.55
29 T	bis(2-Chloroethoxy)methan	0.447	0.437	2.2	122	-0.11	4.62
30 T	Benzoic acid	0.317	0.300	5.4	113	-0.11	4.66
31 C	2,4-Dichlorophenol	0.298	0.299	-0.3	124	-0.12	4.70
32 M	1,2,4-Trichlorobenzene	0.313	0.324	-3.5	130	-0.12	4.77
33 T	Naphthalene	1.033	1.066	-3.2	129	-0.12	4.82
34 T	2,6-Dichlorophenol	0.292	0.294	-0.7	125	-0.12	4.90
35 T	4-Chloroaniline	0.439	0.443	-0.9	123	-0.12	4.89
36 C	Hexachlorobutadiene	0.206	0.191	7.3	118	-0.12	4.98
37 C	4-Chloro-3-methylphenol	0.351	0.346	1.4	122	-0.11	5.31
38 T	2-Methylnaphthalene	0.677	0.747	-10.3	137	-0.12	5.41
39 T	1-Methylnaphthalene	0.663	0.709	-6.9	134	-0.12	5.50
40 T	1,2,4,5-Tetrachlorobenzen	0.356	0.342	3.9	123	-0.12	5.59

9.7.15
9

Continuing Calibration Summary

Job Number: JB39747

Sample: MSW632-CC610

Account: ALNJ Accutest New Jersey

Lab FileID: W13920.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	127	-0.12	4.80
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	128	-0.12	6.32
44	T	Pentachloronitrobenzene	0.172	0.154	10.5	114	-0.13	7.63
45	P	Hexachlorocyclopentadiene	0.330	0.268	18.8	94	-0.12	5.61
46	C	2,4,6-Trichlorophenol	0.385	0.359	6.8	118	-0.12	5.68
47	T	2,4,5-Trichlorophenol	0.412	0.383	7.0	116	-0.11	5.72
48	S	2-Fluorobiphenyl	1.322	1.245	5.8	122	-0.12	5.75
49	T	2-Chloronaphthalene	1.069	1.037	3.0	122	-0.12	5.83
50	M	Acenaphthylene	1.727	1.692	2.0	125	-0.12	6.19
51	T	Dimethylphthalate	1.297	1.228	5.3	123	-0.12	6.14
52	T	2,4-Dinitrotoluene	0.370	0.386	-4.3	127	-0.12	6.53
53	C	Acenaphthene	1.071	1.110	-3.6	132	-0.12	6.35
54	P	2,4-Dinitrophenol	0.202	0.169	16.3	102	-0.12	6.40
55	T	Dibenzofuran	1.538	1.586	-3.1	134	-0.12	6.49
56	M	2,6-Dinitrotoluene	0.276	0.294	-6.5	130	-0.11	6.20
57	P	4-Nitrophenol	0.295	0.257	12.9	106	-0.11	6.48
58	T	2,3,4,6-Tetrachlorophenol	0.354	0.328	7.3	117	-0.12	6.64
59	T	Fluorene	1.219	1.267	-3.9	133	-0.12	6.79
60	T	4-Chlorophenyl-phenylethe	0.606	0.595	1.8	127	-0.12	6.80
61	T	Diethylphthalate	1.292	1.226	5.1	123	-0.12	6.76
62	T	2-nitroaniline	0.365	0.374	-2.5	126	-0.12	5.95
63	T	3-nitroaniline	0.318	0.316	0.6	126	-0.12	6.31
64	T	4-nitroaniline	0.324	0.323	0.3	124	-0.12	6.86
65		Acenaphthene-d10a	1.000	1.000	0.0	128	-0.12	6.32
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	122	-0.14	7.67
68	T	4,6-Dinitro-2-methylpheno	0.148	0.147	0.7	115	-0.12	6.90
69	C	n-Nitrosodiphenylamine	0.536	0.532	0.7	122	-0.12	6.92
70	T	1,2-Diphenylhydrazine	0.835	0.769	7.9	118	-0.13	6.94
71	S	2,4,6-Tribromophenol	0.122	0.117	4.1	117	-0.12	7.03
72	T	4-Bromophenyl-phenylether	0.223	0.229	-2.7	127	-0.13	7.24
73	T	Hexachlorobenzene	0.222	0.228	-2.7	128	-0.13	7.38
74	C	Pentachlorophenol	0.150	0.152	-1.3	119	-0.13	7.56
75	T	Phenanthrene	1.038	1.100	-6.0	132	-0.13	7.69
76	T	Anthracene	1.062	1.133	-6.7	132	-0.14	7.73
77	T	Carbazole	0.978	1.041	-6.4	131	-0.13	7.91
78	T	Di-n-butylphthalate	1.253	1.242	0.9	122	-0.14	8.34
79	C	Fluoranthene	1.163	1.171	-0.7	125	-0.15	8.94
80	I	Phenanthrene-d10a	1.000	1.000	0.0	121	-0.14	7.67
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	119	-0.16	10.57
83	T	Benzidine	0.464	0.397	14.4	100	-0.15	9.10
84	M	Pyrene	1.144	1.200	-4.9	123	-0.15	9.18
85	S	Terphenyl-d14	0.863	0.852	1.3	119	-0.15	9.39
86		3,3-Dimethylbenzidine	0.645	0.529	18.0	102	-0.15	9.95
87	T	Butylbenzylphthalate	0.511	0.526	-2.9	122	-0.15	10.01
88	T	3,3'-Dichlorobenzidine	0.412	0.432	-4.9	124	-0.15	10.57
89	T	Benzo[a]anthracene	1.073	1.052	2.0	119	-0.16	10.55
90	T	Chrysene	1.046	1.030	1.5	118	-0.16	10.60
91	T	bis(2-Ethylhexyl)phthalat	0.727	0.750	-3.2	121	-0.15	10.73
92	I	Perylene-d12	1.000	1.000	0.0	123	-0.17	12.14
93	C	Di-n-octylphthalate	1.316	1.271	3.4	118	-0.15	11.42

9.7.15
9

Continuing Calibration Summary

Job Number: JB39747

Sample: MSW632-CC610

Account: ALNJ Accutest New Jersey

Lab FileID: W13920.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.227	1.183	3.6	122	-0.16	11.76
95	T	Benzo[k]fluoranthene	1.117	1.110	0.6	128	-0.16	11.79
96	C	Benzo[a]pyrene	1.071	1.067	0.4	124	-0.16	12.09
97	T	Indeno[1,2,3-cd]pyrene	1.256	1.312	-4.5	131	-0.19	13.17
98	T	Dibenz[a,h]anthracene	1.020	1.069	-4.8	131	-0.18	13.19
99	T	Benzo[g,h,i]perylene	1.040	1.085	-4.3	130	-0.20	13.43
100		Naphthalene-d8b	1.000	1.000	0.0	127	-0.12	4.80
101		o-Toluic Acid					-----NA-----	
			-----	Amount	Calc.	%Drift	-----	
102		m-Toluic Acid					-----NA-----	
			-----	AvgRF	CCRF	%Dev	-----	
103		p-Toluic Acid					-----NA-----	
			-----				-----	

(#) = Out of Range
 w13692.D W130626_8270+.m

SPCC's out = 0 CCC's out = 0
 Tue Jul 16 11:05:20 2013

GC/MS Semi-volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Doug Yargeau
07/16/13 19:12

Data Path : C:\msdchem\2\DATA\W130625\
 Data File : w13332.D
 Acq On : 26 Jun 2013 9:06 am
 Operator : kristinr
 Sample : jB39747-1
 Misc : op33673,msw609,20.47,,,1,1
 ALS Vial : 38 Sample Multiplier: 1

Quant Time: Jul 16 13:28:49 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration

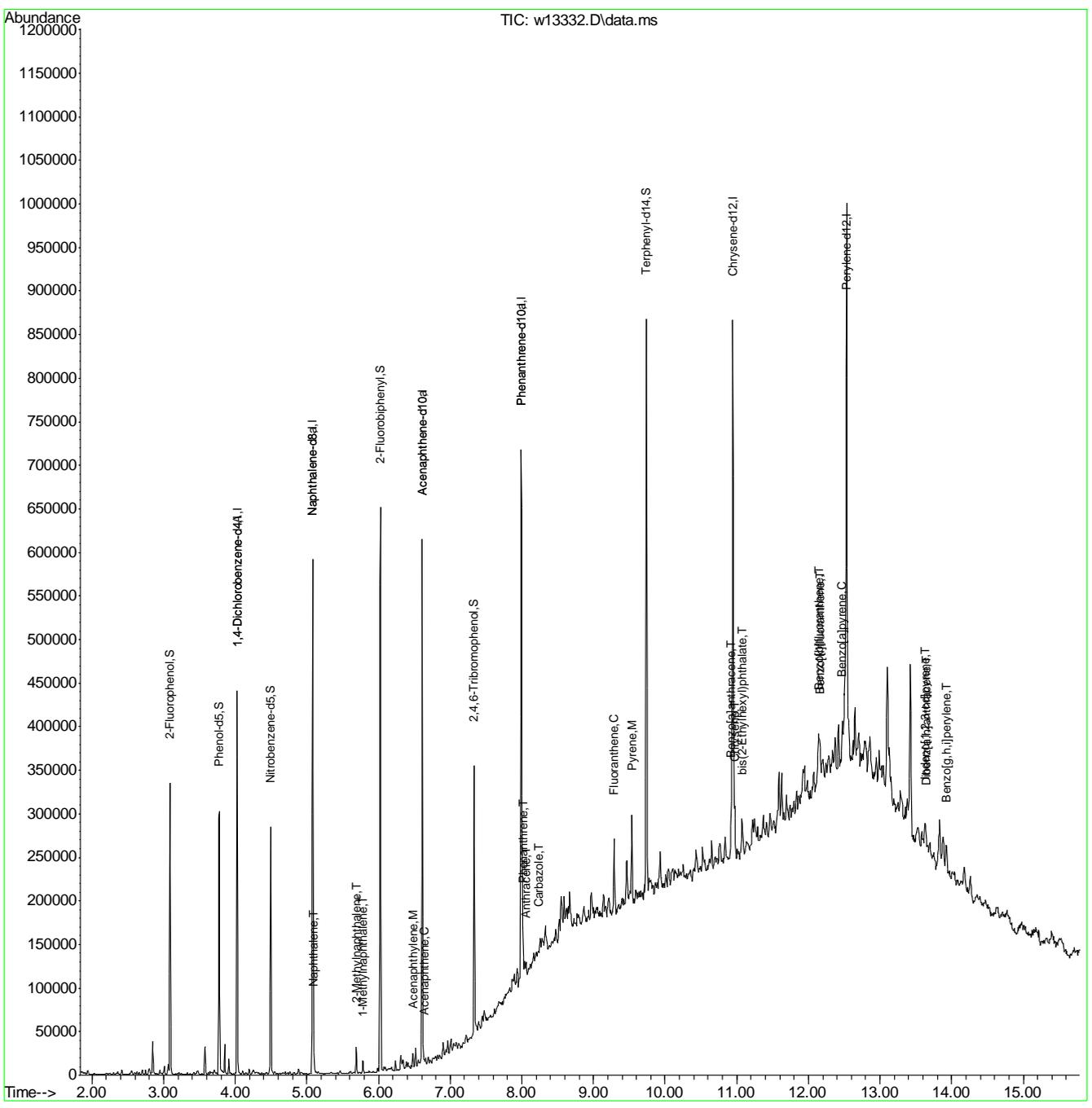
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenzene-d4	4.028	152	53781	40.00	ppm	-0.08	
21) 1,4-Dichlorobenzene-d4A	4.028	152	53781	40.00	PPM	#-0.08	
23) Naphthalene-d8	5.080	136	203857	40.00	ppm	-0.09	
41) Naphthalene-d8a	5.080	136	203857	40.00	ppm	#-0.09	
43) Acenaphthene-d10	6.608	164	127714	40.00	ppm	-0.09	
65) Acenaphthene-d10a	6.608	164	127714	40.00	ppm	-0.09	
67) Phenanthrene-d10	7.992	188	223461m	40.00	ppm	-0.10	
80) Phenanthrene-d10a	7.992	188	223096m	40.00	ppm	-0.10	
82) Chrysene-d12	10.946	240	256971	40.00	ppm	-0.11	
92) Perylene-d12	12.533	264	266421	40.00	ppm	-0.11	
System Monitoring Compounds							
5) 2-Fluorophenol	3.087	112	70264	48.25	ppm	-0.09	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	48.25%	
7) Phenol-d5	3.777	99	93226	52.53	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	52.53%	
24) Nitrobenzene-d5	4.492	82	79455	52.78	ppm	-0.10	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	105.56%	
48) 2-Fluorobiphenyl	6.026	172	181751	41.46	ppm	-0.08	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	82.92%	
71) 2,4,6-Tribromophenol	7.335	330	32800	36.40	ppm	-0.10	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	36.40%	
85) Terphenyl-d14	9.739	244	247582	41.80	ppm	-0.11	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	83.60%	
Target Compounds							
33) Naphthalene	5.096	128	12411	2.36	ppm		99
38) 2-Methylnaphthalene	5.689	142	6220	1.59	ppm		96
39) 1-Methylnaphthalene	5.785	142	3415	0.91	ppm		93
50) Acenaphthylene	6.480	152	4574	0.80	ppm		94
53) Acenaphthene	6.635	153	1066	0.30	ppm		91
75) Phenanthrene	8.013	178	20354m	3.37	ppm		
76) Anthracene	8.061	178	5564	0.88	ppm		97
77) Carbazole	8.232	167	2119	0.39	ppm		91
79) Fluoranthene	9.290	202	38222	5.40	ppm		92
84) Pyrene	9.536	202	39454	5.79	ppm		89
89) Benzo[a]anthracene	10.925	228	23501	3.46	ppm		91
90) Chrysene	10.973	228	23956	3.61	ppm		97
91) bis(2-Ethylhexyl)phtha...	11.074	149	6973	2.22	ppm		88
94) Benzo[b]fluoranthene	12.143	252	22442m	2.81	ppm		
95) Benzo[k]fluoranthene	12.159	252	19680m	2.50	ppm		
96) Benzo[a]pyrene	12.474	252	23938	3.39	ppm		94
97) Indeno[1,2,3-cd]pyrene	13.628	276	15430	1.70	ppm		76
98) Dibenz[a,h]anthracene	13.644	278	5742m	0.77	ppm		
99) Benzo[g,h,i]perylene	13.927	276	18169m	2.40	ppm		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

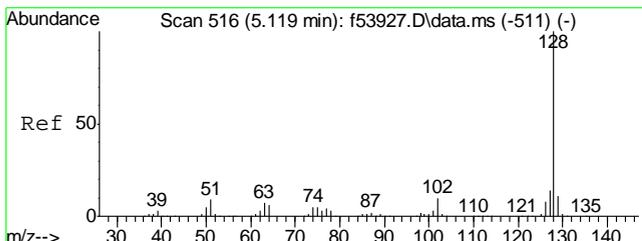
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130625\
Data File : w13332.D
Acq On : 26 Jun 2013 9:06 am
Operator : kristinr
Sample : jb39747-1
Misc : op33673,msw609,20.47,,,1,1
ALS Vial : 38 Sample Multiplier: 1

Quant Time: Jul 16 13:28:49 2013
Quant Method : C:\msdchem\1\methods\W130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Jun 06 09:42:09 2013
Response via : Initial Calibration

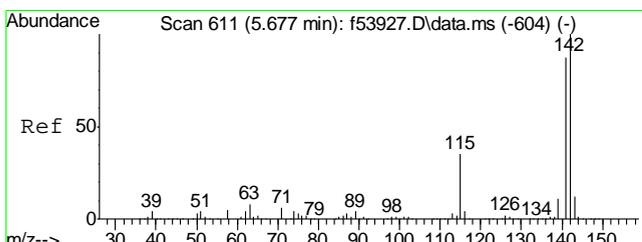
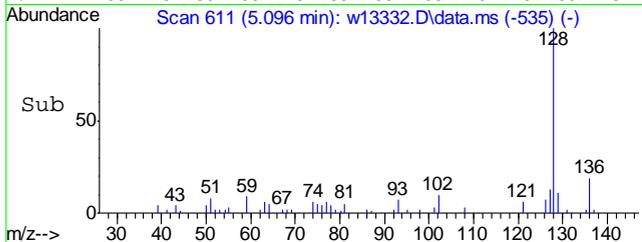
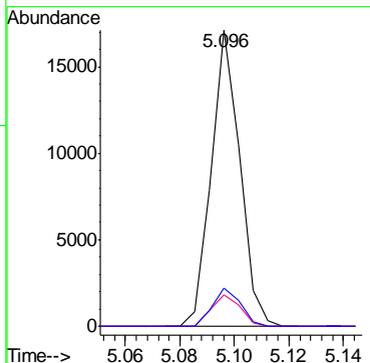
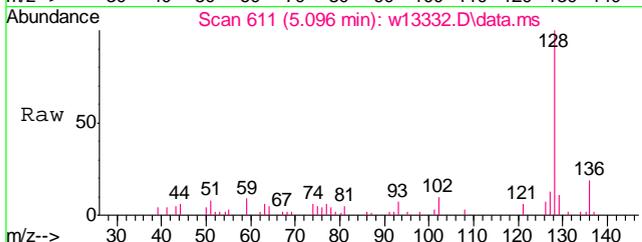


10.1.1
10



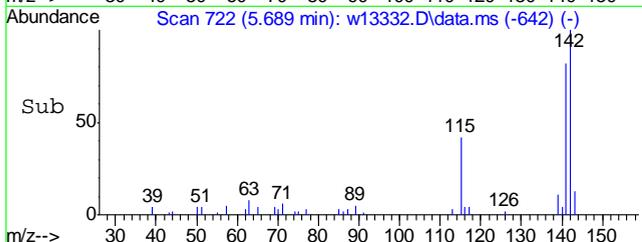
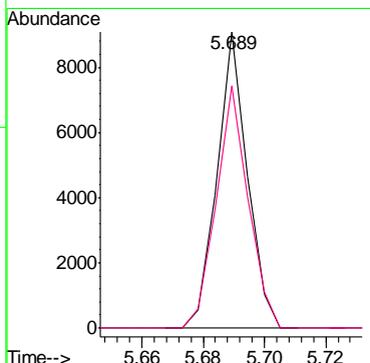
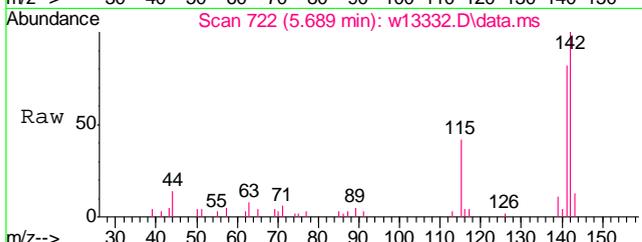
#33
 Naphthalene
 Concen: 2.36 ppm
 RT: 5.096 min Scan# 611
 Delta R.T. -0.092 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Ratio	Lower	Upper
128	100		
129	10.5	0.0	40.6
127	12.8	0.0	43.1

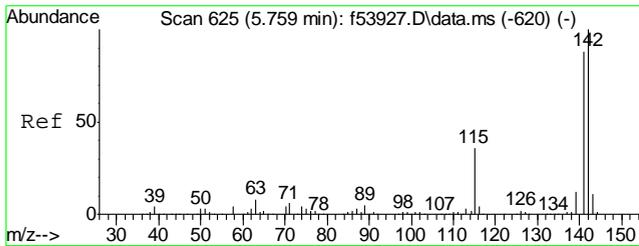


#38
 2-Methylnaphthalene
 Concen: 1.59 ppm
 RT: 5.689 min Scan# 722
 Delta R.T. -0.074 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Ratio	Lower	Upper
142	100		
141	82.0	56.0	116.0

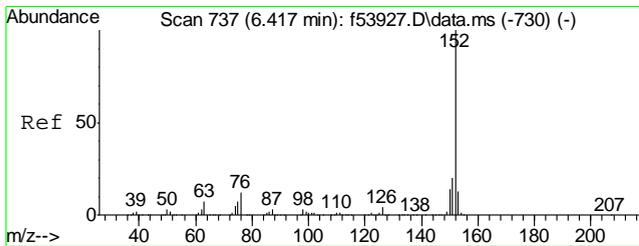
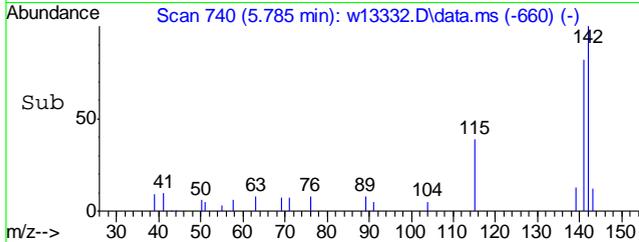
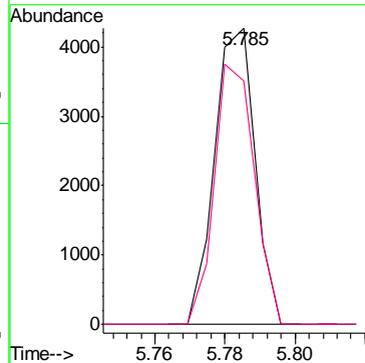
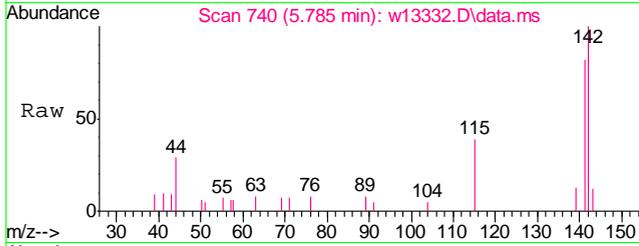


10.1.1 10



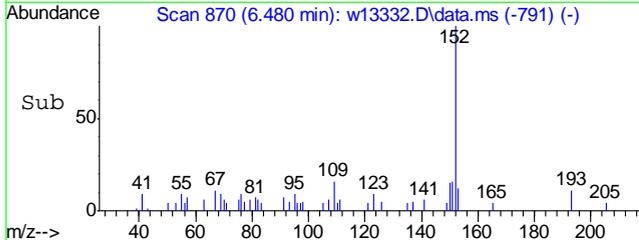
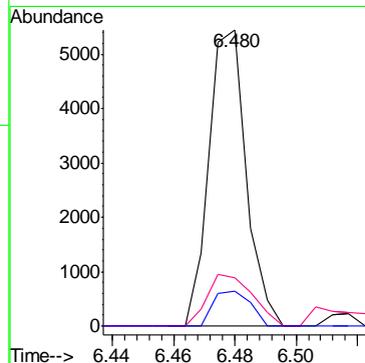
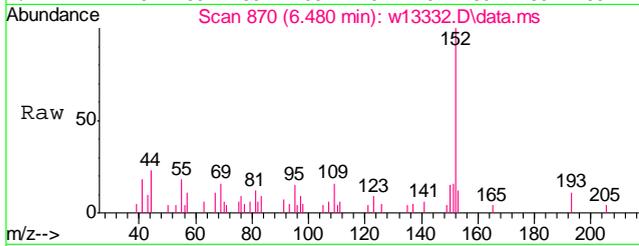
#39
 1-Methylnaphthalene
 Concen: 0.91 ppm
 RT: 5.785 min Scan# 740
 Delta R.T. -0.072 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion:142 Resp: 3415
 Ion Ratio Lower Upper
 142 100
 141 82.1 68.8 108.8

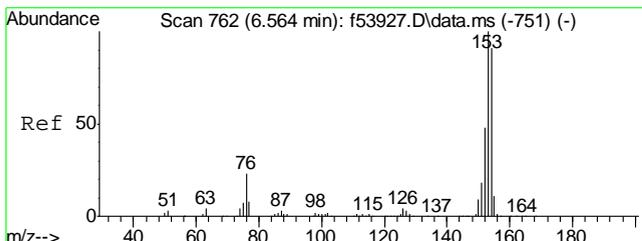


#50
 Acenaphthylene
 Concen: 0.80 ppm
 RT: 6.480 min Scan# 870
 Delta R.T. -0.078 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion:152 Resp: 4574
 Ion Ratio Lower Upper
 152 100
 151 16.2 0.0 49.6
 153 11.7 0.0 43.0

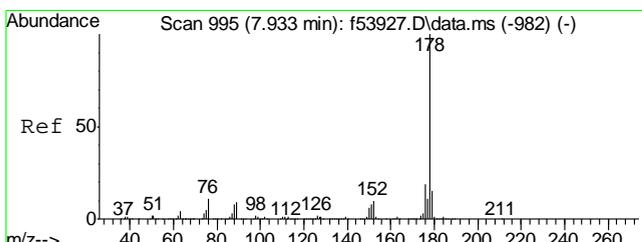
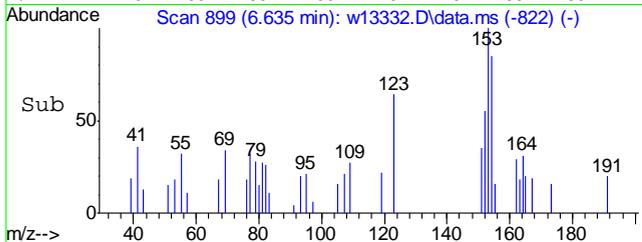
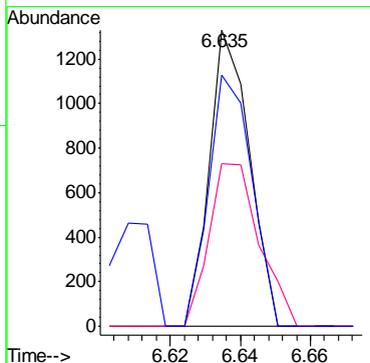
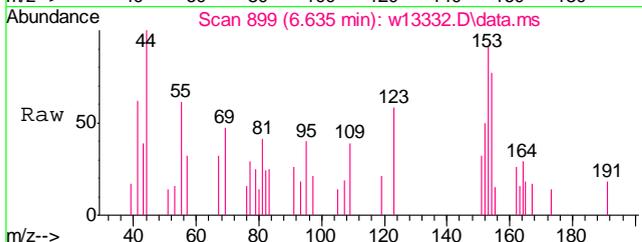


10.1.1
 10



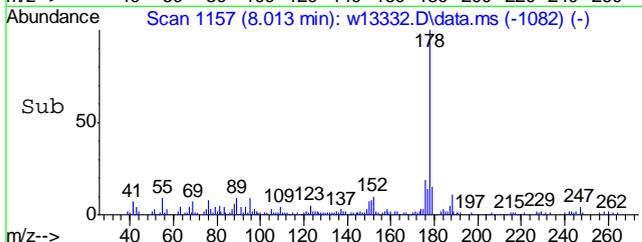
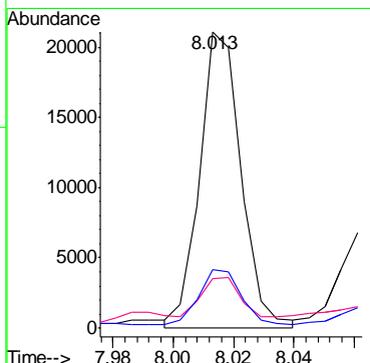
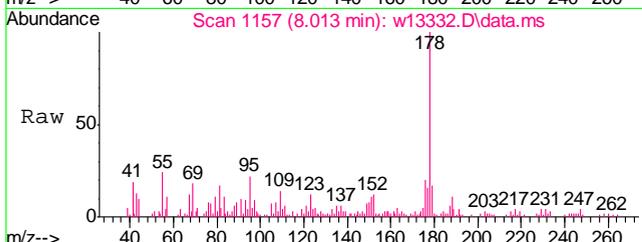
#53
 Acenaphthene
 Concen: 0.30 ppm
 RT: 6.635 min Scan# 899
 Delta R.T. -0.086 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
153	1066		
152	54.9	17.6	77.6
154	84.7	62.0	122.0

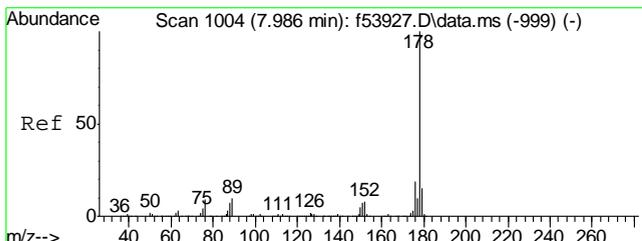


#75
 Phenanthrene
 Concen: 3.37 ppm m
 RT: 8.013 min Scan# 1157
 Delta R.T. -0.102 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
178	20354		
179	16.8	0.0	45.1
176	19.9	0.0	49.3

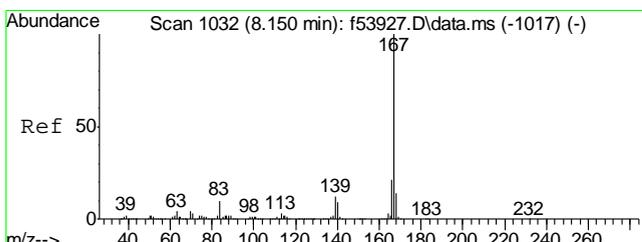
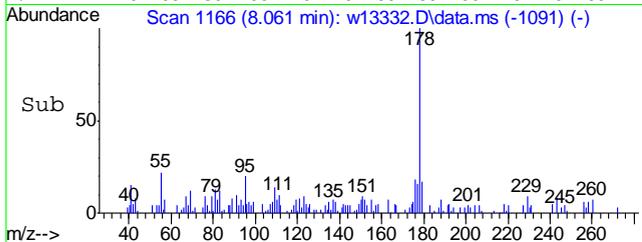
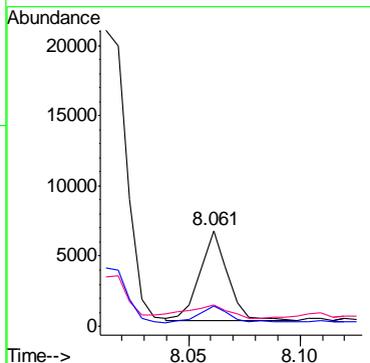
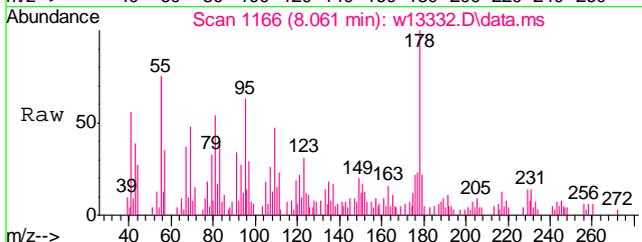


10.1.1
10



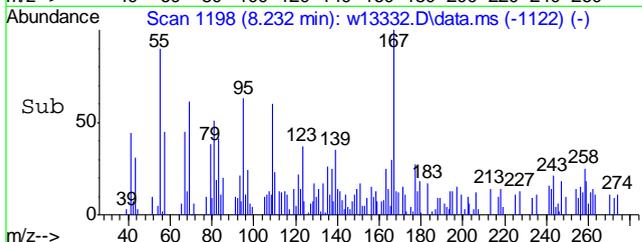
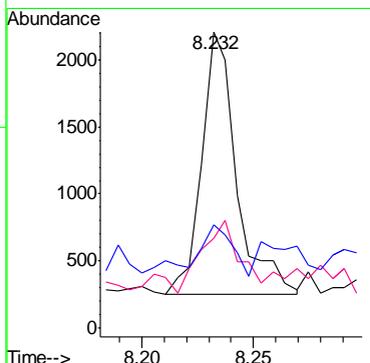
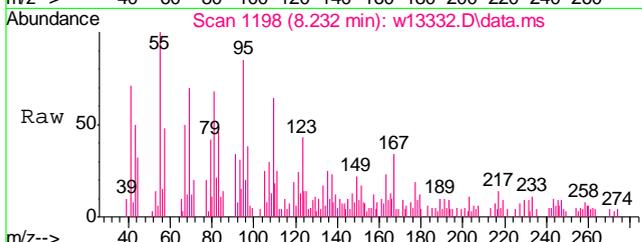
#76
 Anthracene
 Concen: 0.88 ppm
 RT: 8.061 min Scan# 1166
 Delta R.T. -0.101 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
178	5564	100	
179	12.4	0.0	45.3
176	18.7	0.0	48.5

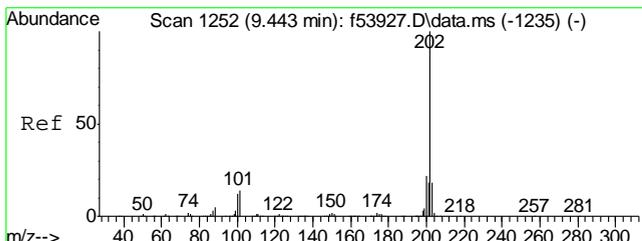


#77
 Carbazole
 Concen: 0.39 ppm
 RT: 8.232 min Scan# 1198
 Delta R.T. -0.093 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
167	2119	100	
166	15.0	0.0	50.5
139	13.8	0.0	42.5

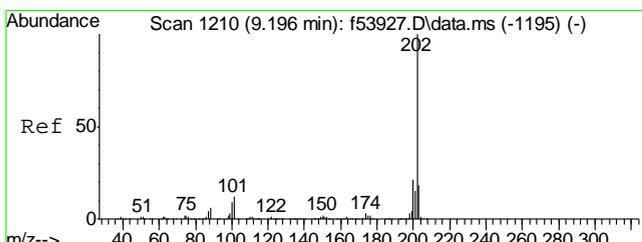
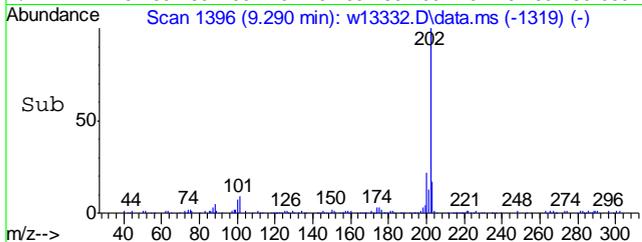
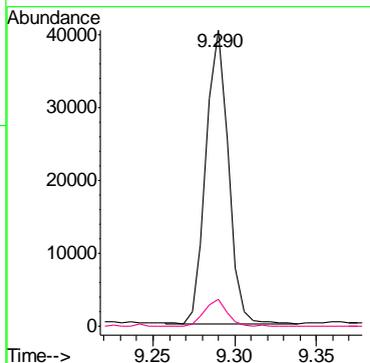
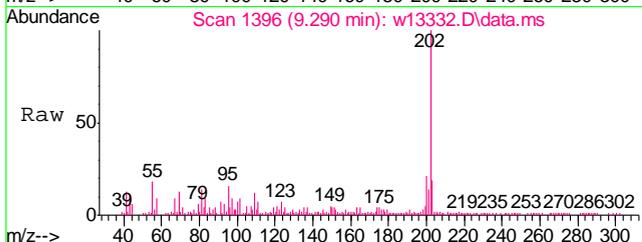


10.1.1 10



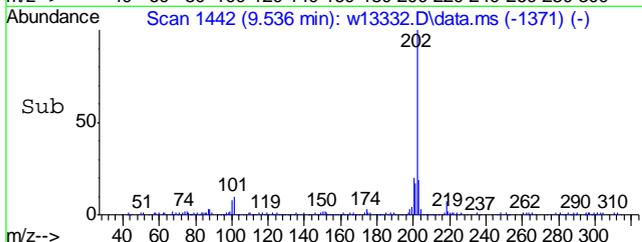
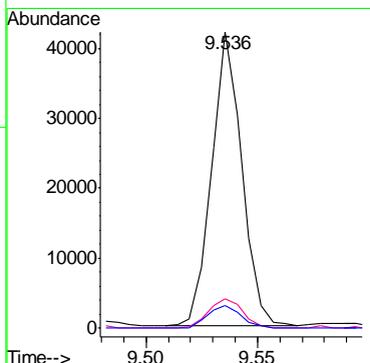
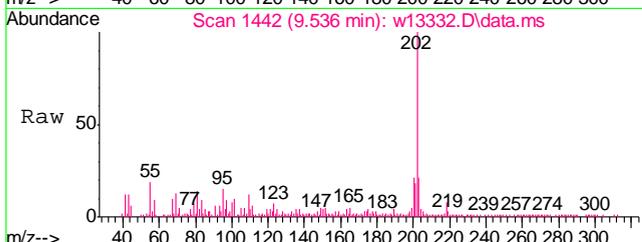
#79
 Fluoranthene
 Concen: 5.40 ppm
 RT: 9.290 min Scan# 1396
 Delta R.T. -0.091 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
202	38222	100	
101	9.1	0.0	42.1

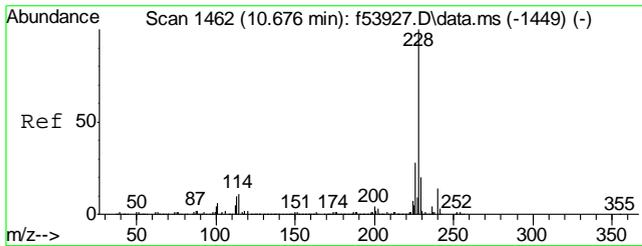


#84
 Pyrene
 Concen: 5.79 ppm
 RT: 9.536 min Scan# 1442
 Delta R.T. -0.120 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
202	39454	100	
101	10.1	0.0	44.8
100	7.6	0.0	41.9

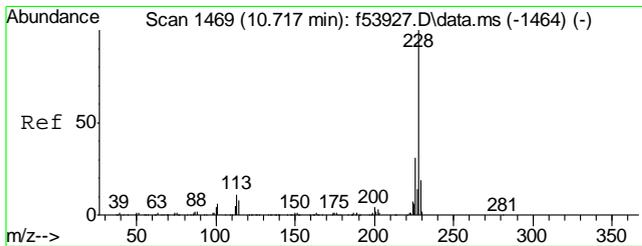
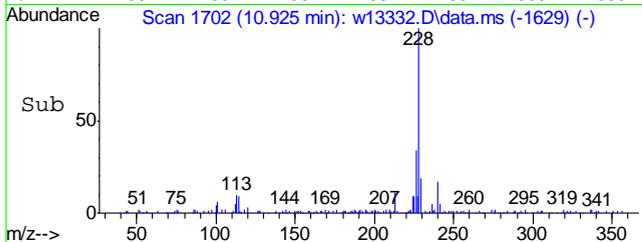
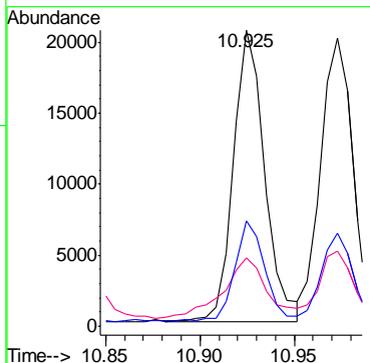
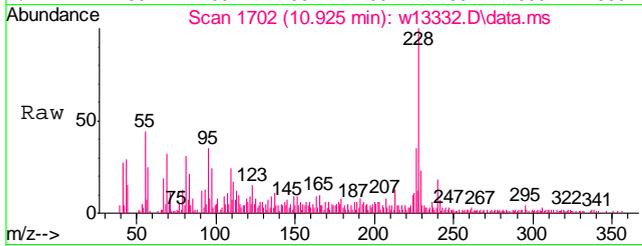


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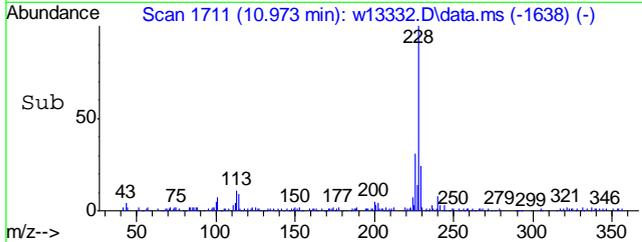
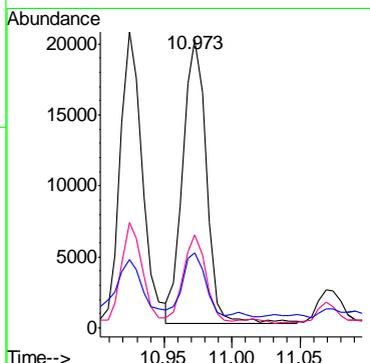
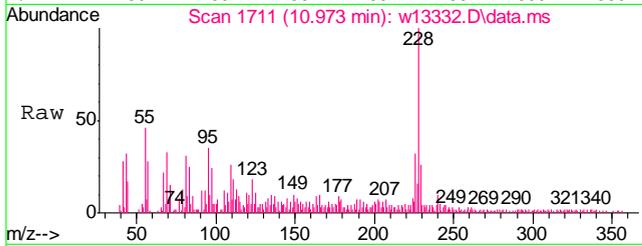
#89
 Benzo[a]anthracene
 Concen: 3.46 ppm
 RT: 10.925 min Scan# 1702
 Delta R.T. -0.108 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Ratio	Lower	Upper
228	100		
229	20.6	0.0	49.6
226	34.2	0.0	56.8

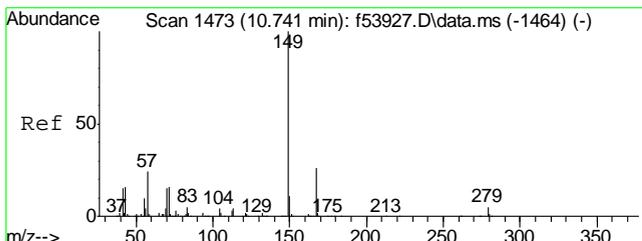


#90
 Chrysene
 Concen: 3.61 ppm
 RT: 10.973 min Scan# 1711
 Delta R.T. -0.112 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Ratio	Lower	Upper
228	100		
226	31.0	0.0	59.8
229	21.8	0.0	49.7

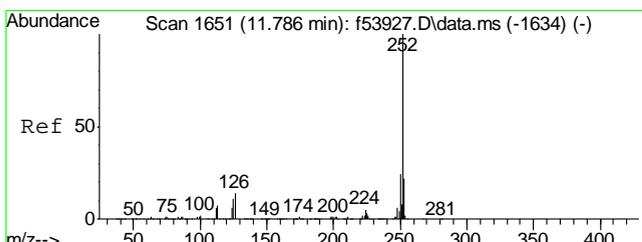
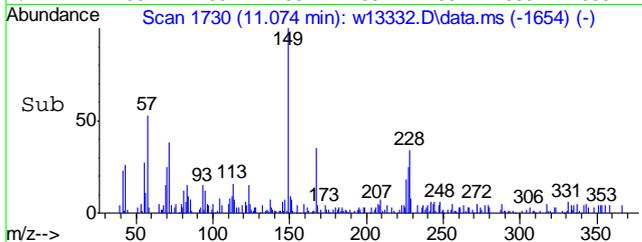
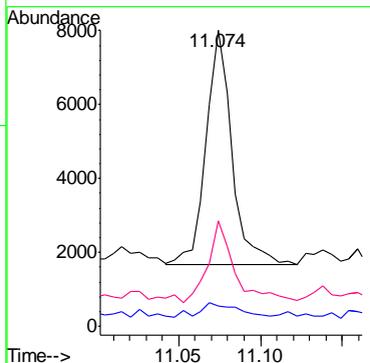
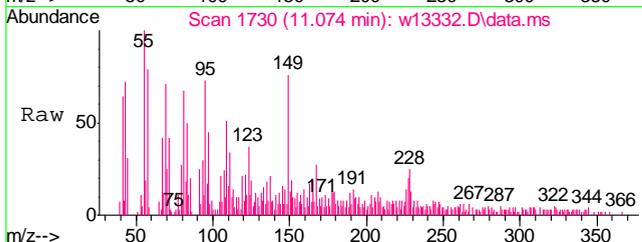


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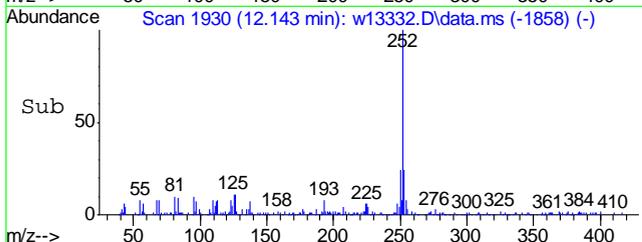
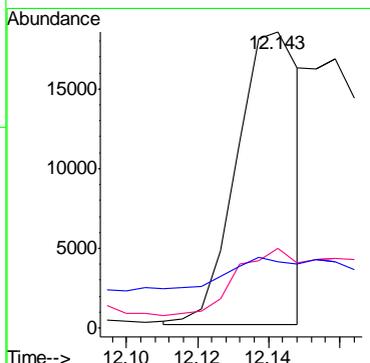
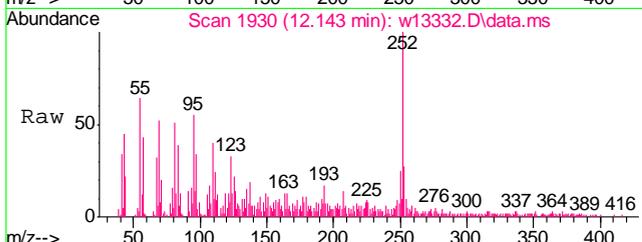
#91
 bis(2-Ethylhexyl)phthalate
 Concen: 2.22 ppm
 RT: 11.074 min Scan# 1730
 Delta R.T. -0.095 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
149	6973	100	
167	33.9	0.0	56.6
279	4.5	0.0	34.5

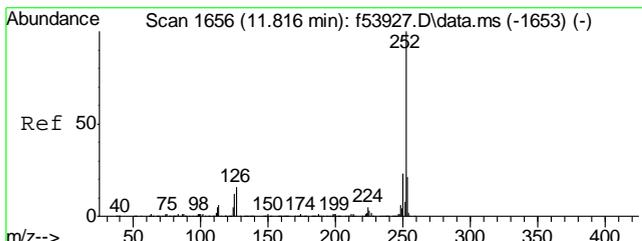


#94
 Benzo[b]fluoranthene
 Concen: 2.81 ppm m
 RT: 12.143 min Scan# 1930
 Delta R.T. -0.117 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
252	22442	100	
253	27.0	0.0	51.7
125	22.2	0.0	41.8

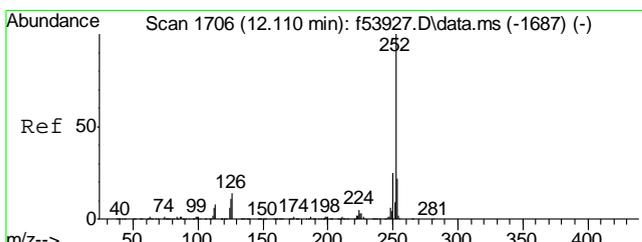
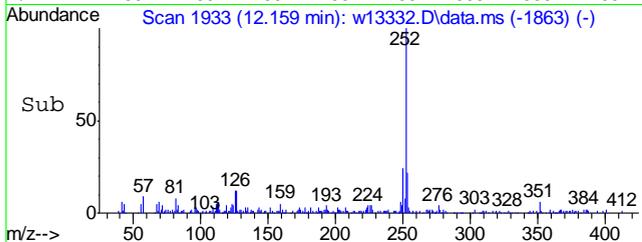
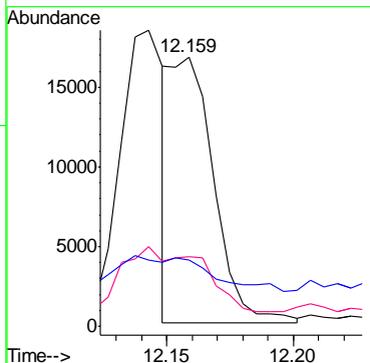
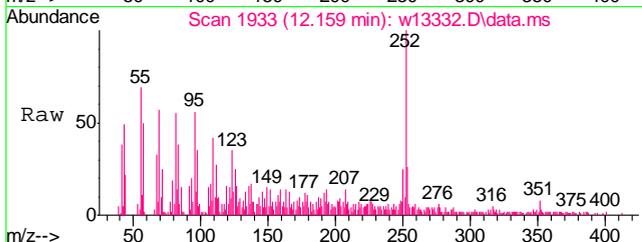


10.1.1 10



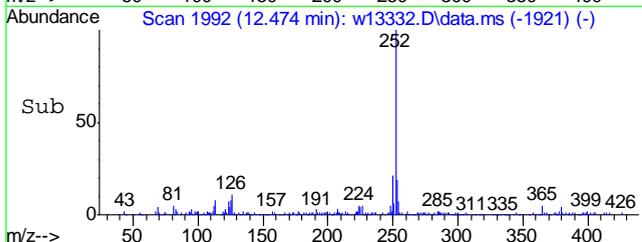
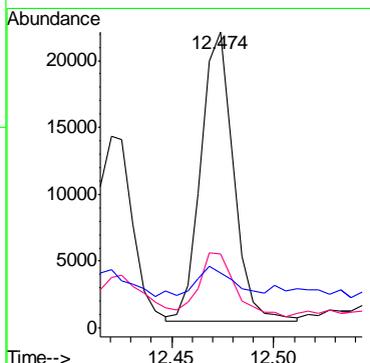
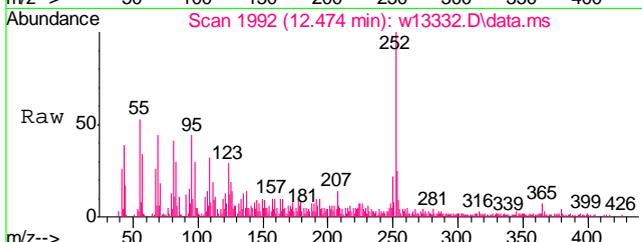
#95
 Benzo[k]fluoranthene
 Concen: 2.50 ppm m
 RT: 12.159 min Scan# 1933
 Delta R.T. -0.128 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
252	19680		
253	25.9	0.0	51.6
125	24.7	0.0	40.3

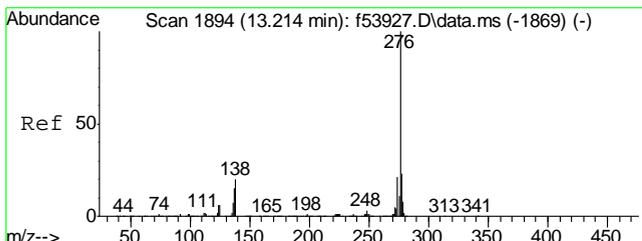


#96
 Benzo[a]pyrene
 Concen: 3.39 ppm
 RT: 12.474 min Scan# 1992
 Delta R.T. -0.119 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
252	23938		
253	20.9	0.0	51.5
125	6.3	0.0	41.6

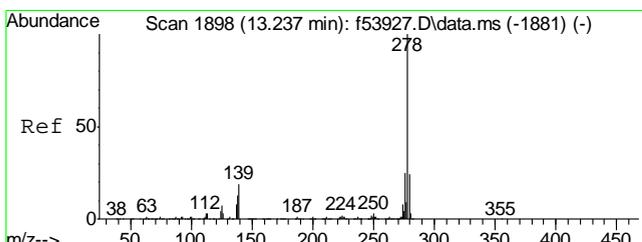
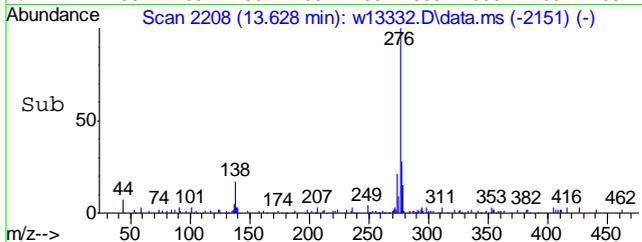
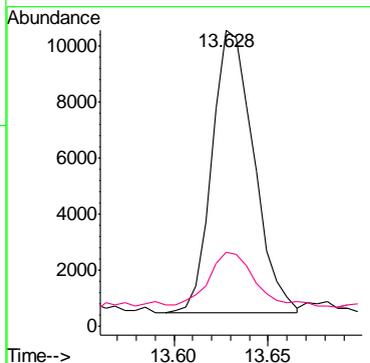
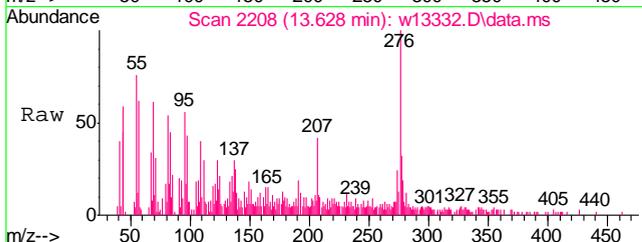


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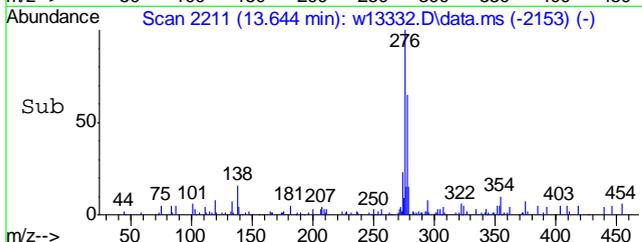
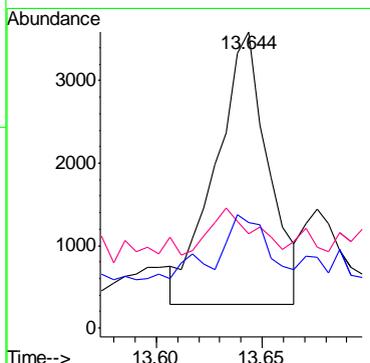
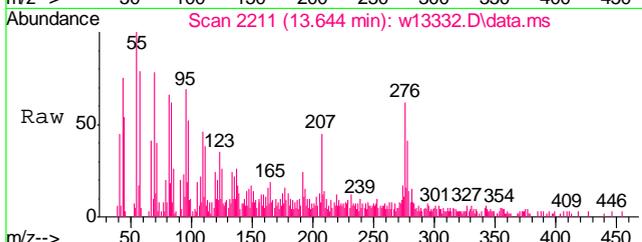
#97
 Indeno[1,2,3-cd]pyrene
 Concen: 1.70 ppm
 RT: 13.628 min Scan# 2208
 Delta R.T. -0.195 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
276	15430	100	
138	18.7	2.0	62.0

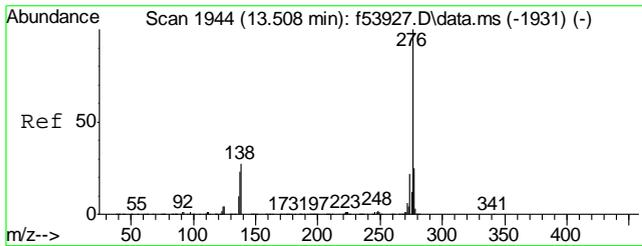


#98
 Dibenz[a,h]anthracene
 Concen: 0.77 ppm m
 RT: 13.644 min Scan# 2211
 Delta R.T. -0.190 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
278	5742	100	
139	31.9	0.0	51.1
279	35.7	0.0	53.5

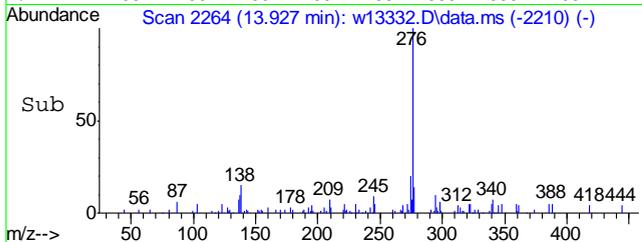
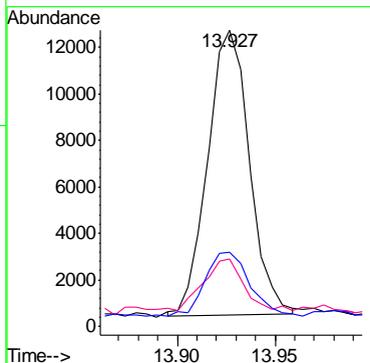
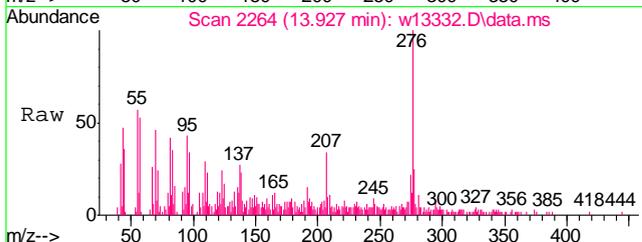


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#99
 Benzo[g,h,i]perylene
 Concen: 2.40 ppm m
 RT: 13.927 min Scan# 2264
 Delta R.T. -0.213 min
 Lab File: w13332.D
 Acq: 26 Jun 2013 9:06 am

Tgt Ion	Resp	Lower	Upper
276	18169		
276	100		
138	22.7	0.0	54.4
277	25.1	0.0	53.5



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Quantitation Report (QT Reviewed)

Doug Yargeau
07/16/13 19:12

Data Path : C:\msdchem\2\DATA\W130625\
 Data File : w13333.D
 Acq On : 26 Jun 2013 9:29 am
 Operator : kristinr
 Sample : jb39747-2
 Misc : op33673,msw609,20.81,,,5,5
 ALS Vial : 39 Sample Multiplier: 1

Quant Time: Jul 16 13:31:11 2013
 Quant Method : C:\msdchem\1\methods\W130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jun 06 09:42:09 2013
 Response via : Initial Calibration

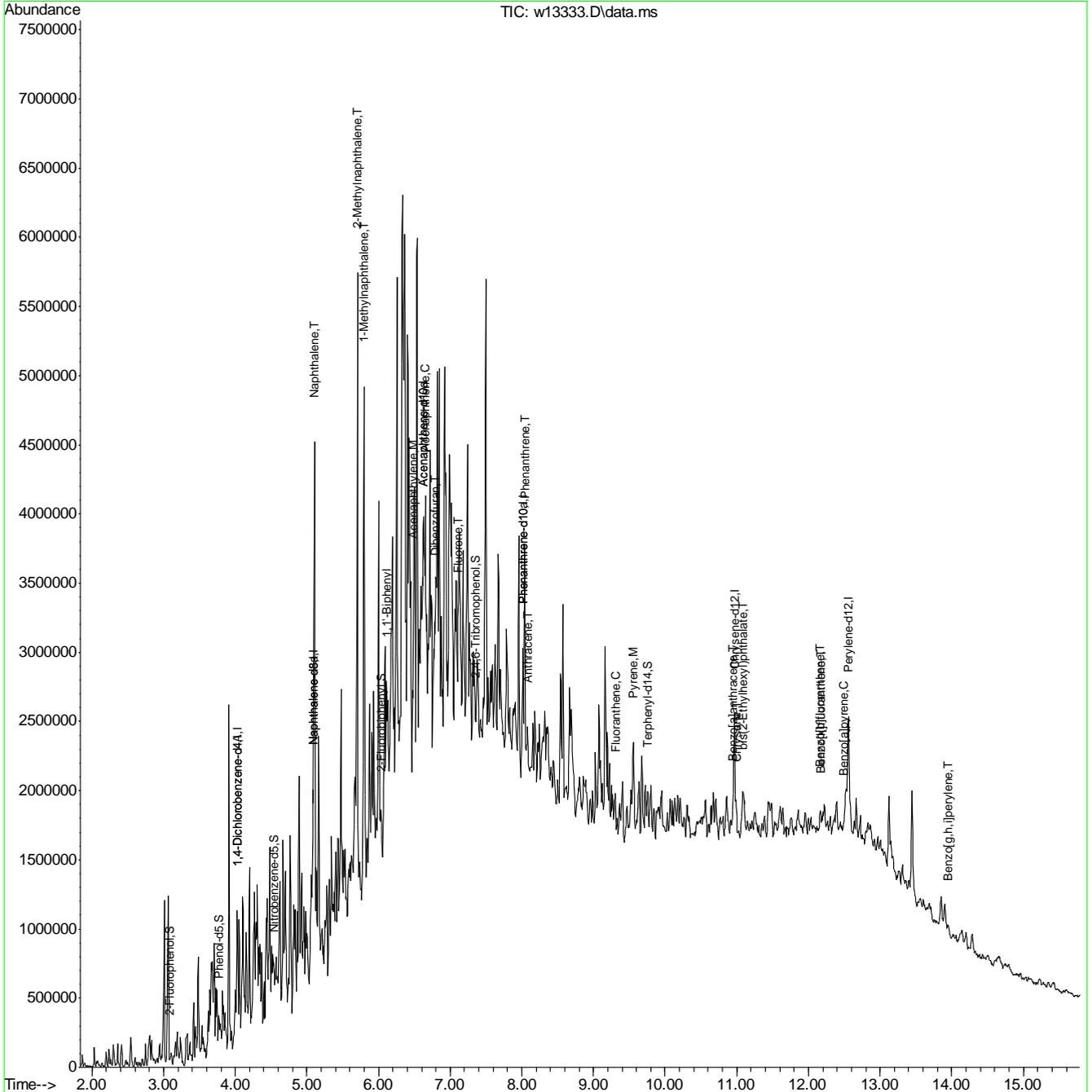
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenzene-d4	4.028	152	86393	40.00	ppm	-0.08	
21) 1,4-Dichlorobenzene-d4A	4.028	152	84739m	40.00	PPM	-0.08	
23) Naphthalene-d8	5.085	136	334395m	40.00	ppm	-0.08	
41) Naphthalene-d8a	5.085	136	333667m	40.00	ppm	-0.08	
43) Acenaphthene-d10	6.624	164	209390	40.00	ppm	-0.07	
65) Acenaphthene-d10a	6.624	164	209390	40.00	ppm	-0.07	
67) Phenanthrene-d10	8.013	188	359259	40.00	ppm	-0.08	
80) Phenanthrene-d10a	8.013	188	359259	40.00	ppm	#-0.08	
82) Chrysene-d12	10.967	240	398004	40.00	ppm	-0.09	
92) Perylene-d12	12.559	264	387951	40.00	ppm	-0.09	
System Monitoring Compounds							
5) 2-Fluorophenol	3.087	112	4753	2.03	ppm	-0.09	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	2.03%#	
7) Phenol-d5	3.777	99	9659	3.39	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	3.39%#	
24) Nitrobenzene-d5	4.546	82	18603m	7.53	ppm	-0.05	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	15.06%#	
48) 2-Fluorobiphenyl	6.031	172	12463	1.73	ppm	-0.08	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	3.46%#	
71) 2,4,6-Tribromophenol	7.356	330	1811	1.25	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	1.25%#	
85) Terphenyl-d14	9.755	244	15137	1.65	ppm	-0.10	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	3.30%#	
Target Compounds							
33) Naphthalene	5.107	128	1495879	173.24	ppm		Qvalue 99
38) 2-Methylnaphthalene	5.705	142	1257061m	195.76	ppm		
39) 1-Methylnaphthalene	5.796	142	817962m	132.79	ppm		
50) Acenaphthylene	6.490	152	187934	20.02	ppm		92
53) Acenaphthene	6.656	153	203973	35.02	ppm		96
55) Dibenzofuran	6.795	168	65708m	7.30	ppm		
59) Fluorene	7.110	166	256627m	36.12	ppm		
66) 1,1'-Biphenyl	6.111	154	185618m	25.33	ppm		
75) Phenanthrene	8.040	178	758365	77.99	ppm		100
76) Anthracene	8.082	178	121239	11.93	ppm		90
79) Fluoranthene	9.311	202	79351	6.97	ppm		93
84) Pyrene	9.557	202	241568	22.88	ppm		96
89) Benzo[a]anthracene	10.946	228	49172	4.68	ppm		72
90) Chrysene	10.994	228	93900	9.14	ppm		83
91) bis(2-Ethylhexyl)phtha...	11.090	149	23587	4.85	ppm		98
94) Benzo[b]fluoranthene	12.164	252	17960m	1.54	ppm		
95) Benzo[k]fluoranthene	12.175	252	5278m	0.46	ppm		
96) Benzo[a]pyrene	12.495	252	30554	2.98	ppm		95
99) Benzo[g,h,i]perylene	13.954	276	22854m	2.07	ppm		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

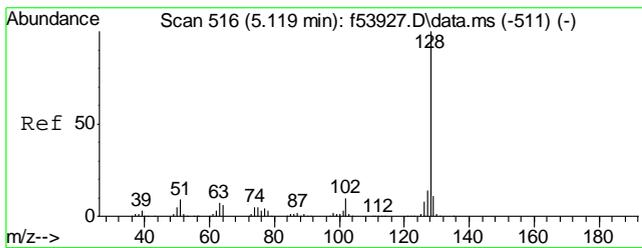
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130625\
Data File : w13333.D
Acq On : 26 Jun 2013 9:29 am
Operator : kristinr
Sample : jb39747-2
Misc : op33673,msw609,20.81,,,5,5
ALS Vial : 39 Sample Multiplier: 1

Quant Time: Jul 16 13:31:11 2013
Quant Method : C:\msdchem\1\methods\W130530_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Jun 06 09:42:09 2013
Response via : Initial Calibration

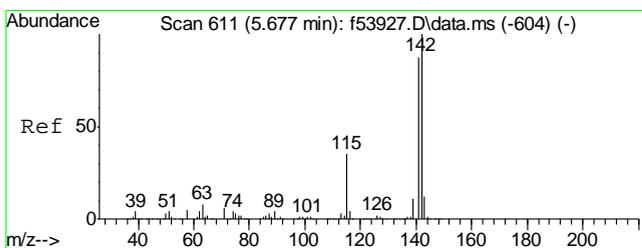
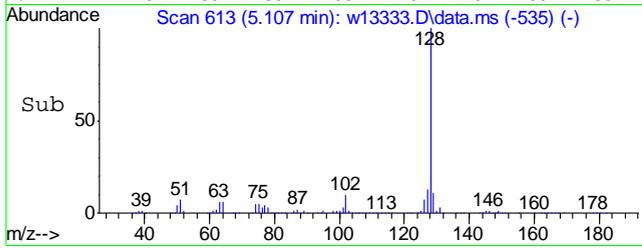
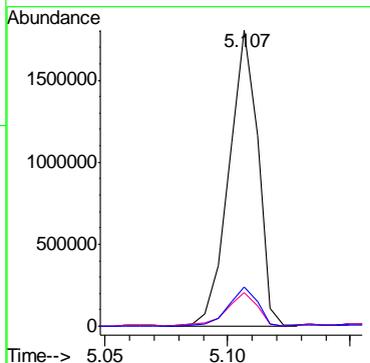
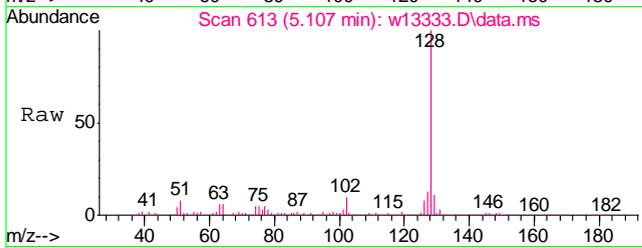


10.12 10



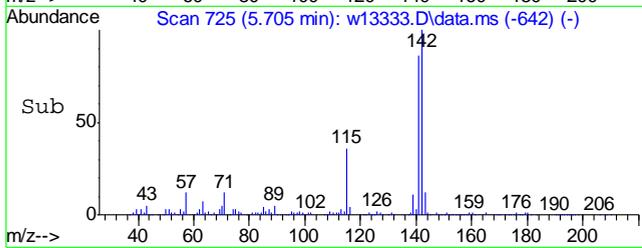
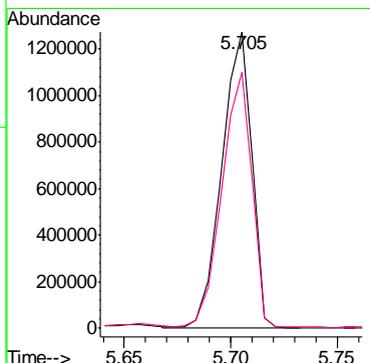
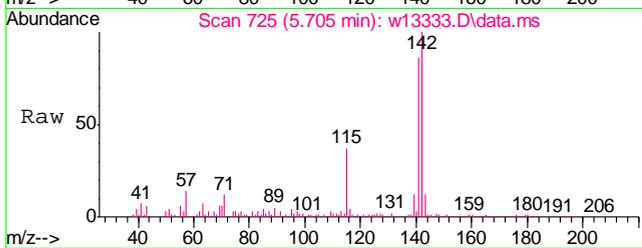
#33
 Naphthalene
 Concen: 173.24 ppm
 RT: 5.107 min Scan# 613
 Delta R.T. -0.081 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
128	1495879	100	
129	11.3	0.0	40.6
127	13.2	0.0	43.1

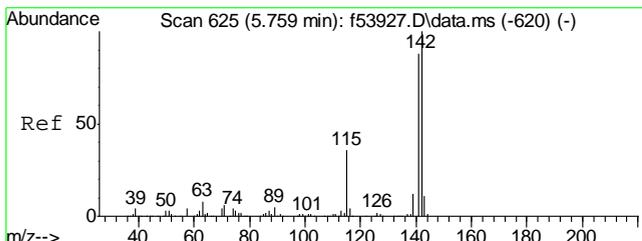


#38
 2-Methylnaphthalene
 Concen: 195.76 ppm m
 RT: 5.705 min Scan# 725
 Delta R.T. -0.058 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
142	1257061	100	
141	86.4	56.0	116.0

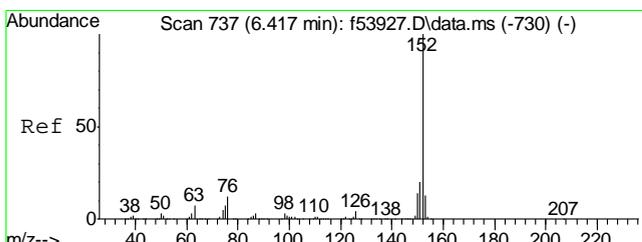
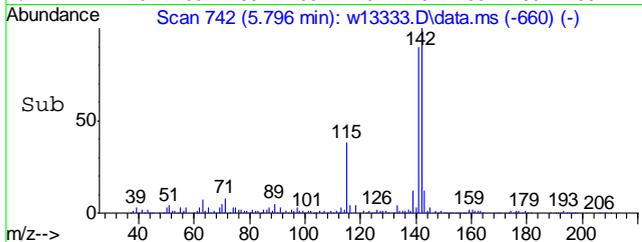
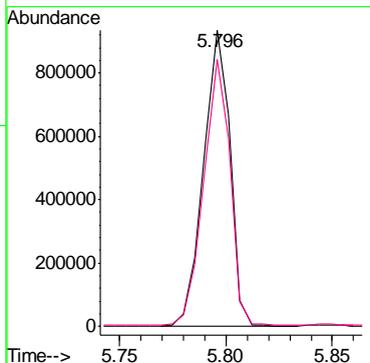
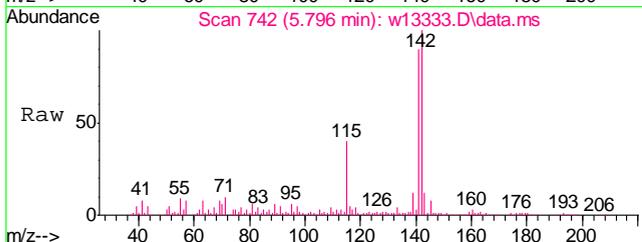


10.12 10



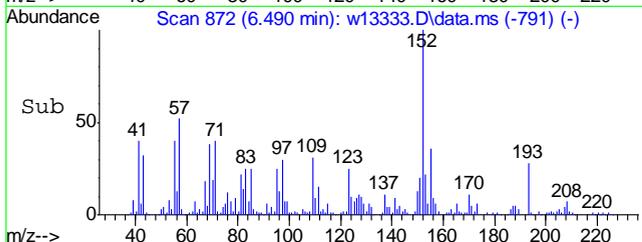
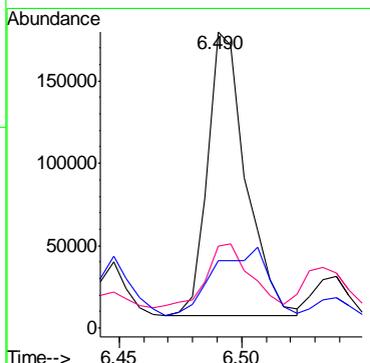
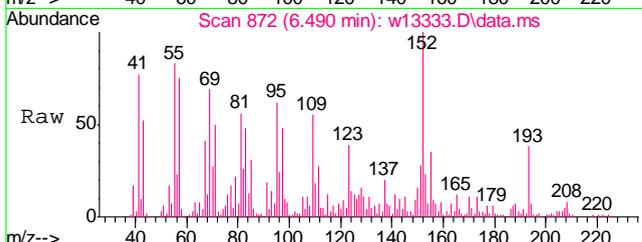
#39
 1-Methylnaphthalene
 Concen: 132.79 ppm m
 RT: 5.796 min Scan# 742
 Delta R.T. -0.061 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
142	817962	100	
141	90.3	68.8	108.8

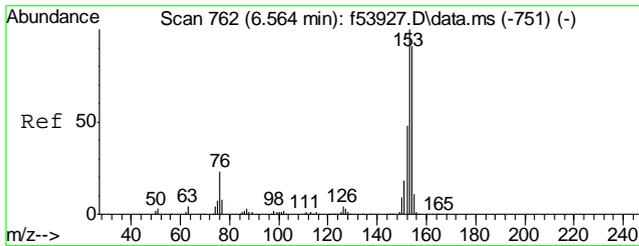


#50
 Acenaphthylene
 Concen: 20.02 ppm
 RT: 6.490 min Scan# 872
 Delta R.T. -0.067 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
152	187934	100	
151	21.0	0.0	49.6
153	19.3	0.0	43.0

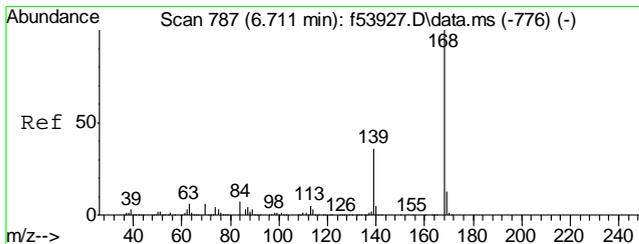
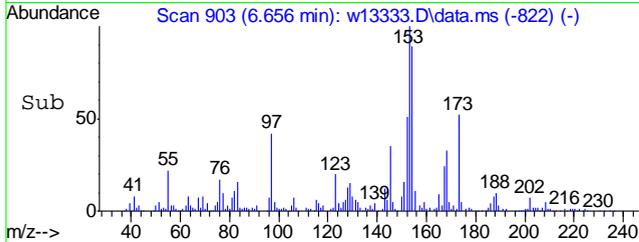
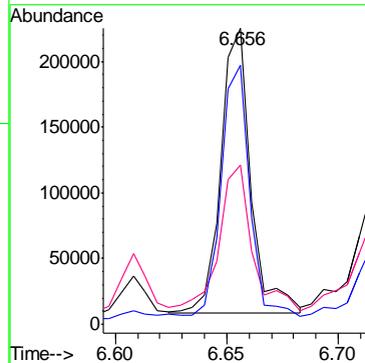
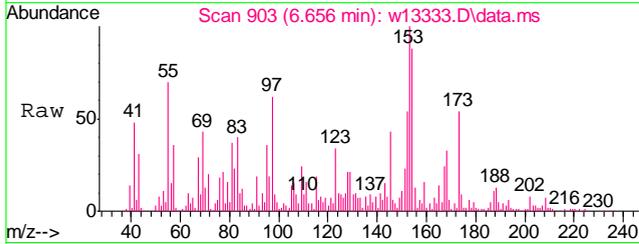


10.12 10



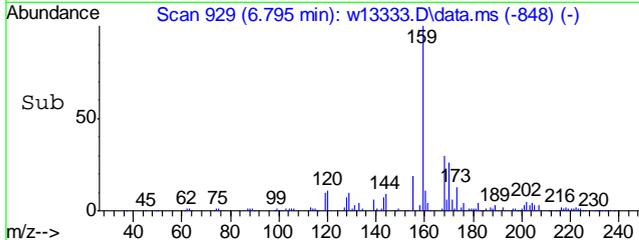
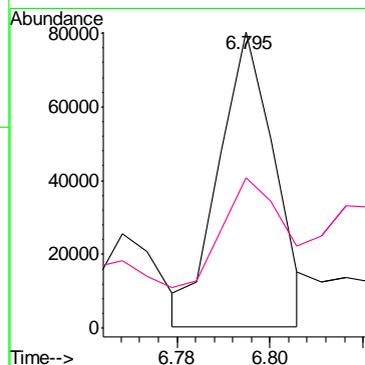
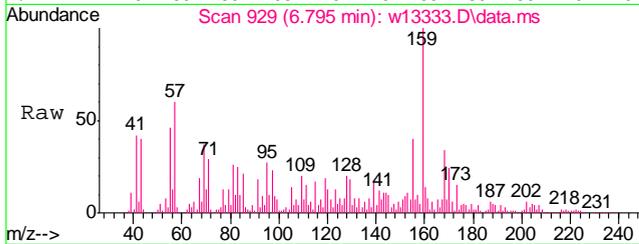
#53
 Acenaphthene
 Concen: 35.02 ppm
 RT: 6.656 min Scan# 903
 Delta R.T. -0.065 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
153	203973		
152	51.5	17.6	77.6
154	88.7	62.0	122.0

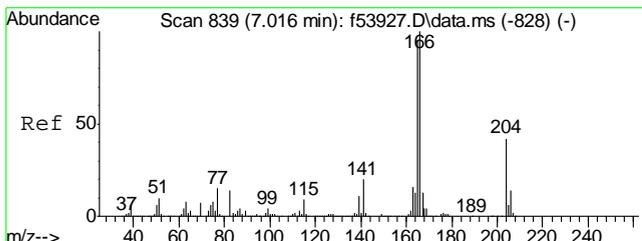


#55
 Dibenzofuran
 Concen: 7.30 ppm m
 RT: 6.795 min Scan# 929
 Delta R.T. -0.067 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
168	65708		
139	50.7	9.2	69.2

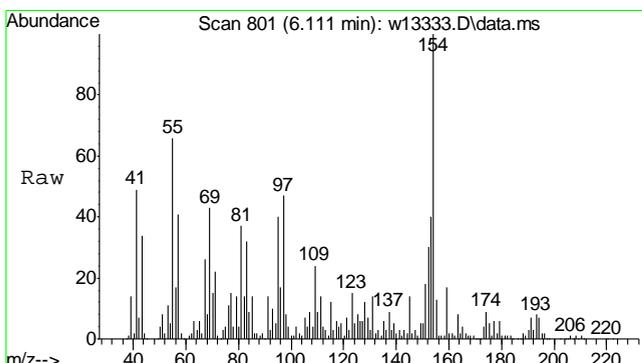
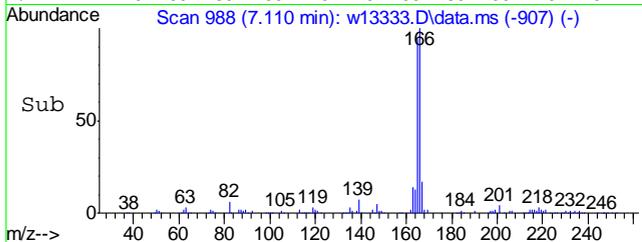
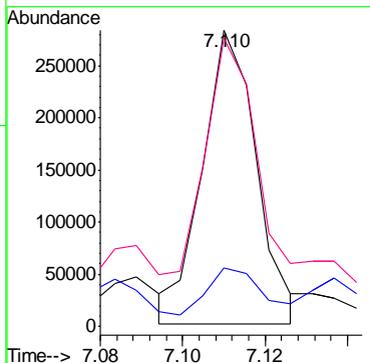
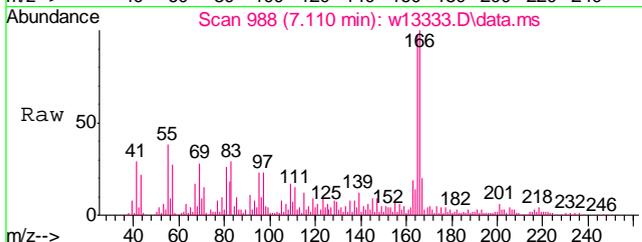


10.12
10



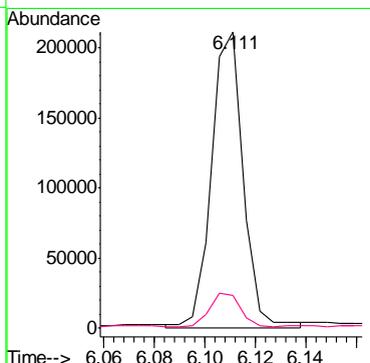
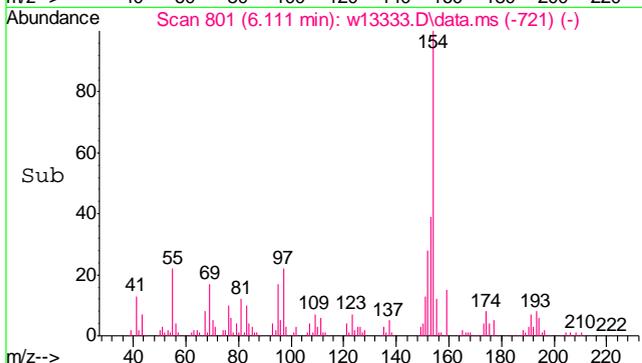
#59
 Fluorene
 Concen: 36.12 ppm m
 RT: 7.110 min Scan# 988
 Delta R.T. -0.067 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
166	100		
165	97.2	66.3	126.3
167	19.6	0.0	43.2

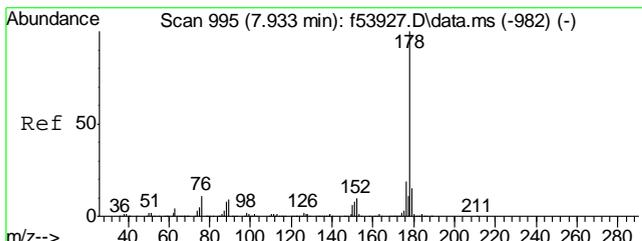


#66
 1,1'-Biphenyl
 Concen: 25.33 ppm m
 RT: 6.111 min Scan# 801
 Delta R.T. -0.072 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
154	100		
76	10.9	0.0	0.0#

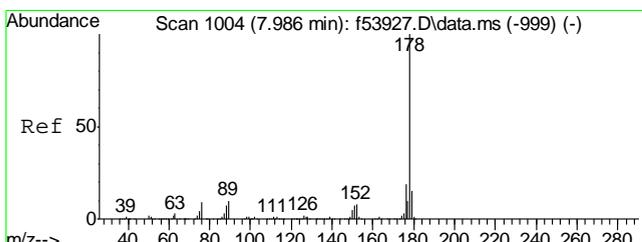
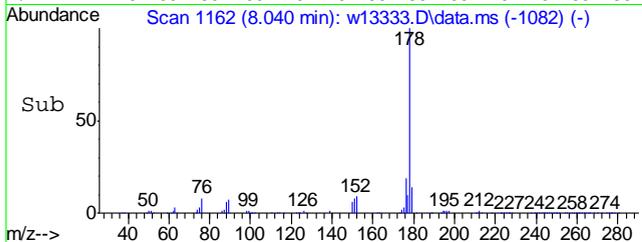
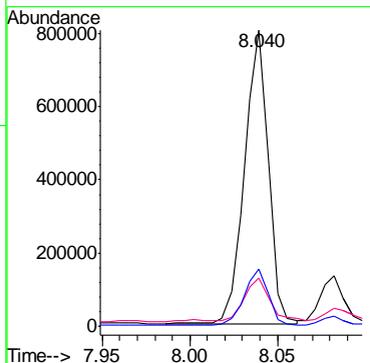
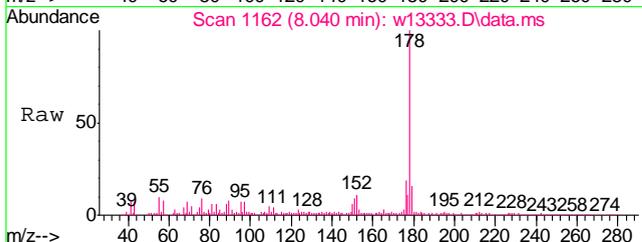


10.12 10



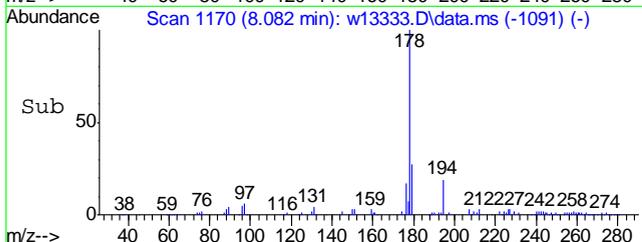
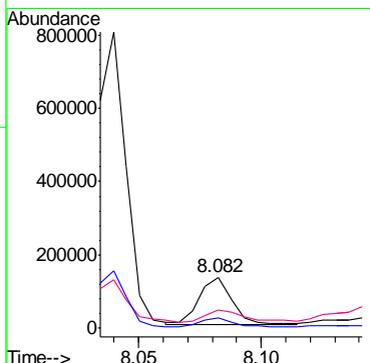
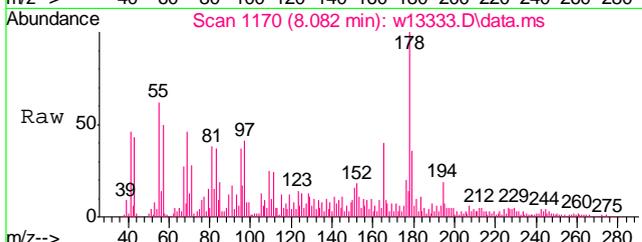
#75
 Phenanthrene
 Concen: 77.99 ppm
 RT: 8.040 min Scan# 1162
 Delta R.T. -0.075 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
178	758365	100	
179	15.0	0.0	45.1
176	19.1	0.0	49.3

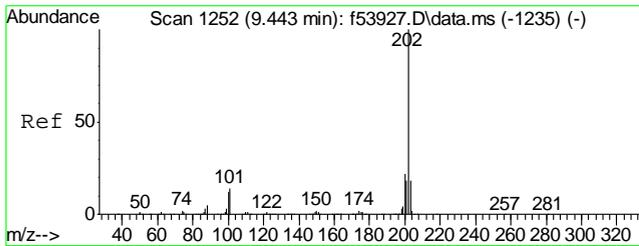


#76
 Anthracene
 Concen: 11.93 ppm
 RT: 8.082 min Scan# 1170
 Delta R.T. -0.079 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
178	121239	100	
179	24.2	0.0	45.3
176	19.0	0.0	48.5

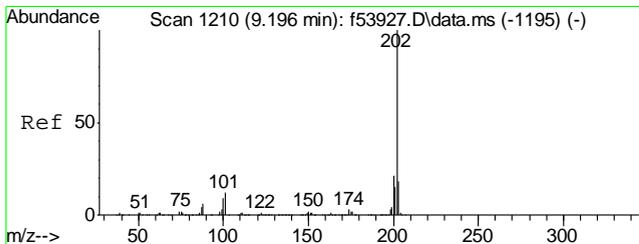
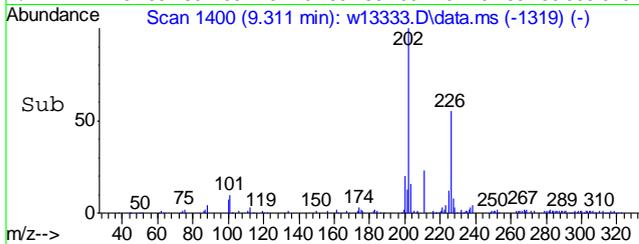
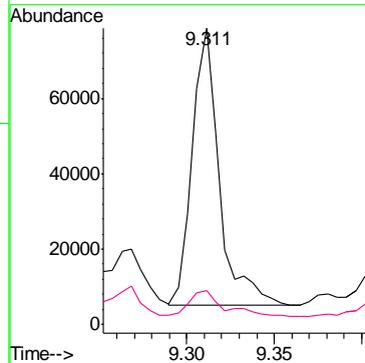
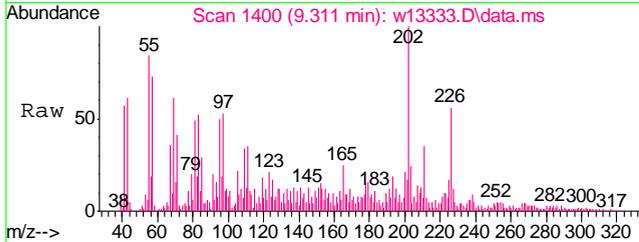


10.12 10



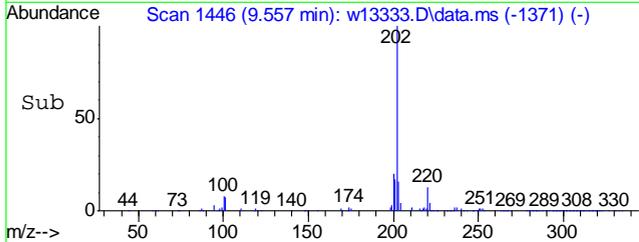
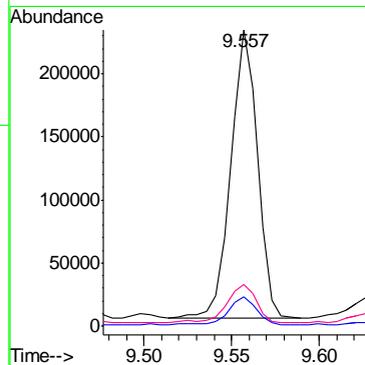
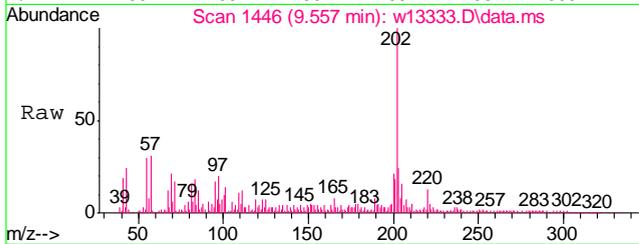
#79
 Fluoranthene
 Concen: 6.97 ppm
 RT: 9.311 min Scan# 1400
 Delta R.T. -0.070 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
202	79351	100	
101	9.2	0.0	42.1

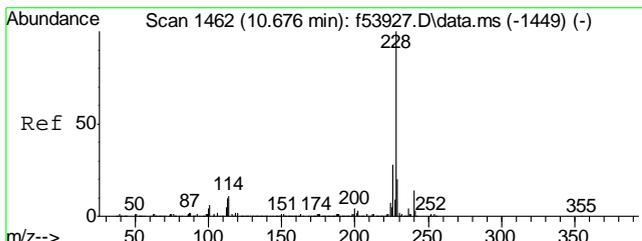


#84
 Pyrene
 Concen: 22.88 ppm
 RT: 9.557 min Scan# 1446
 Delta R.T. -0.099 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
202	241568	100	
101	13.5	0.0	44.8
100	9.7	0.0	41.9

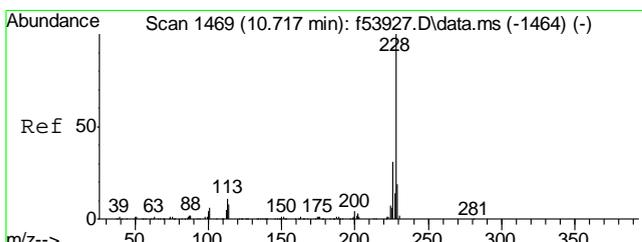
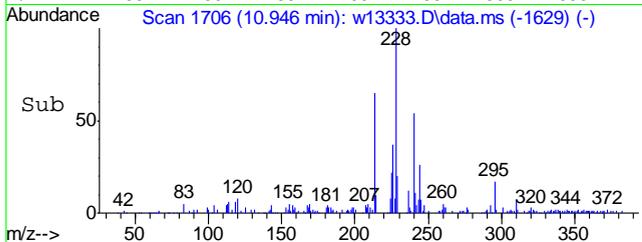
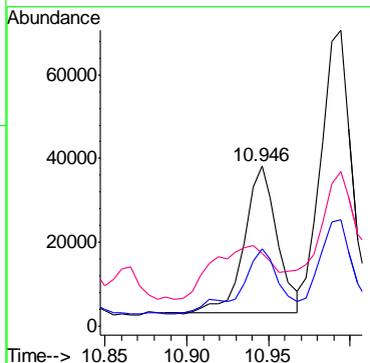
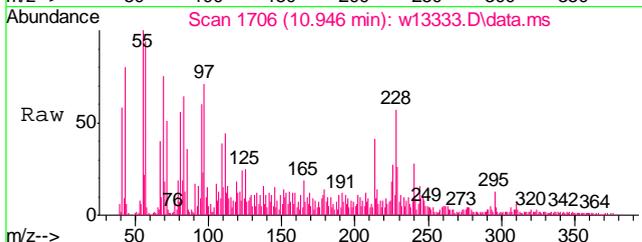


10.1.2 10



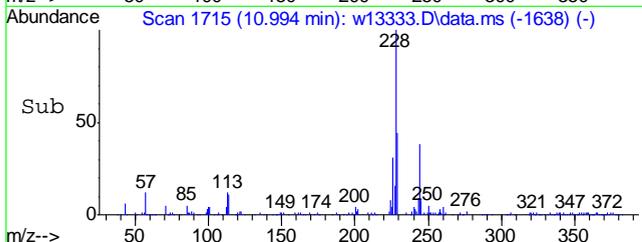
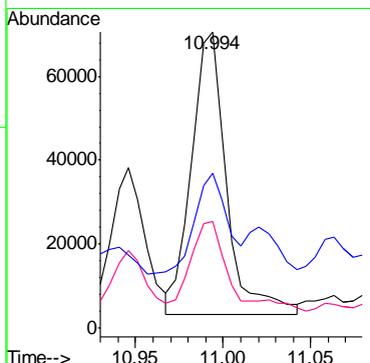
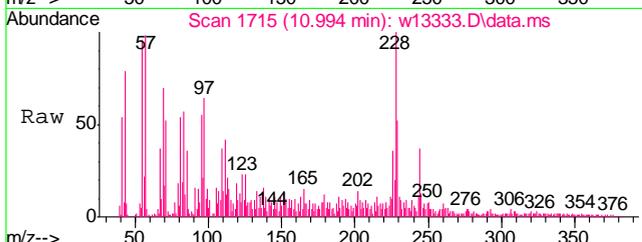
#89
 Benzo[a]anthracene
 Concen: 4.68 ppm
 RT: 10.946 min Scan# 1706
 Delta R.T. -0.086 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
228	49172	100	
229	29.5	0.0	49.6
226	43.8	0.0	56.8

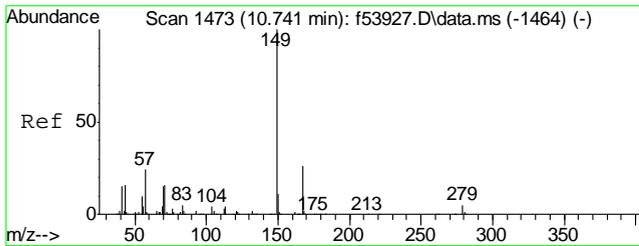


#90
 Chrysene
 Concen: 9.14 ppm
 RT: 10.994 min Scan# 1715
 Delta R.T. -0.091 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
228	93900	100	
226	31.6	0.0	59.8
229	36.5	0.0	49.7

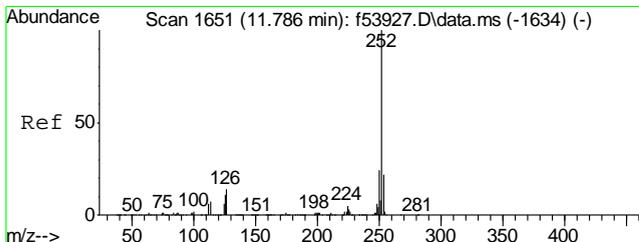
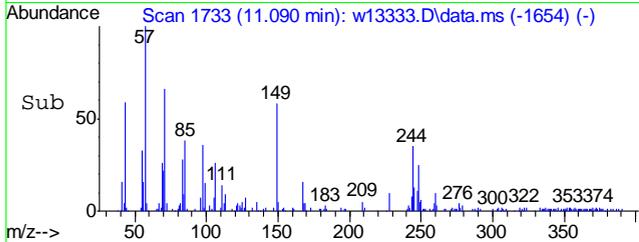
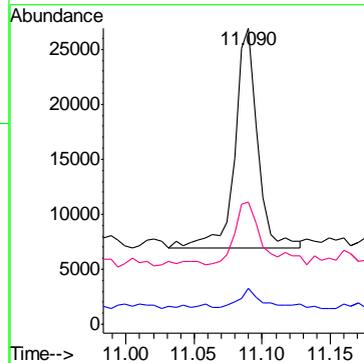
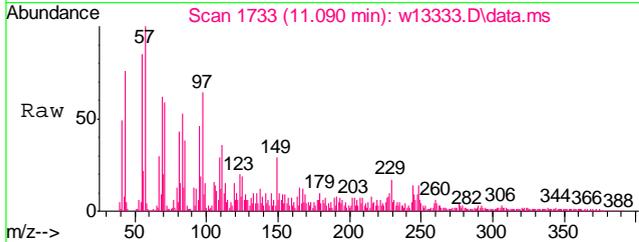


10.12 10



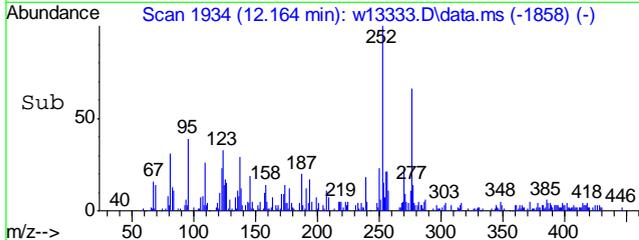
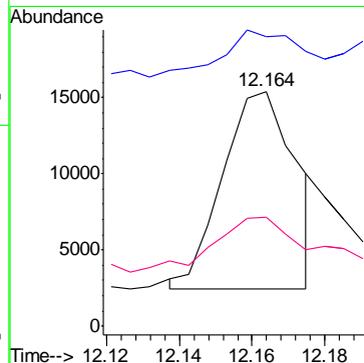
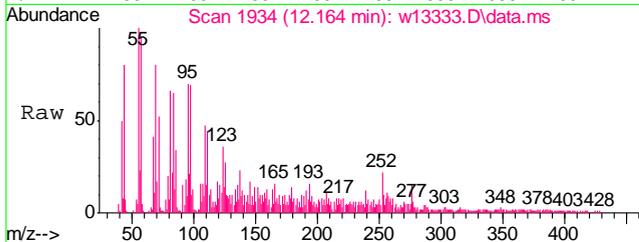
#91
 bis(2-Ethylhexyl)phthalate
 Concen: 4.85 ppm
 RT: 11.090 min Scan# 1733
 Delta R.T. -0.079 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
149	100		
167	27.1	0.0	56.6
279	8.2	0.0	34.5

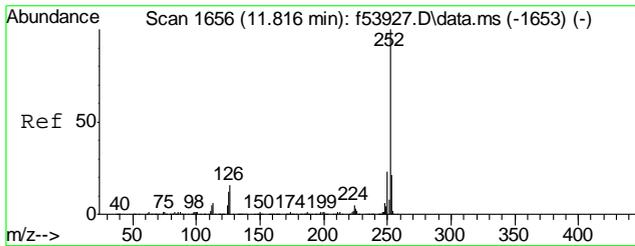


#94
 Benzo[b]fluoranthene
 Concen: 1.54 ppm m
 RT: 12.164 min Scan# 1934
 Delta R.T. -0.096 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
252	100		
253	46.4	0.0	51.7
125	123.3	0.0	41.8#

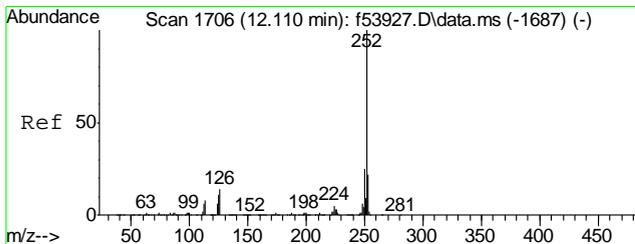
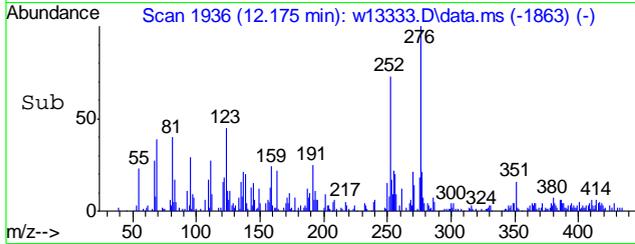
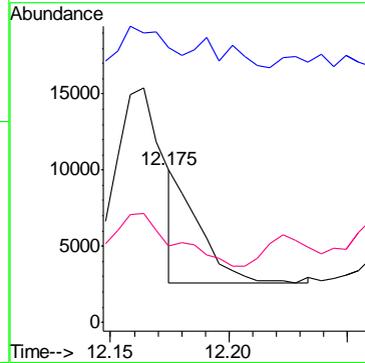
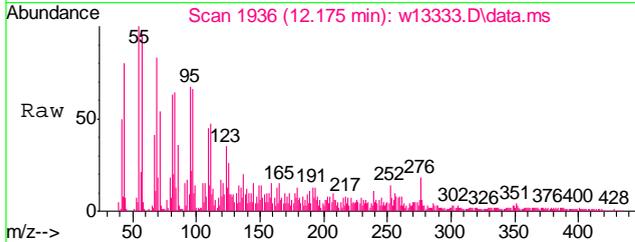


10.12
 10



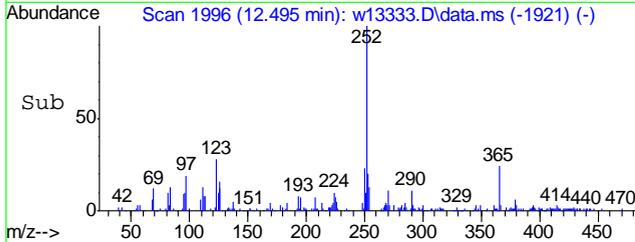
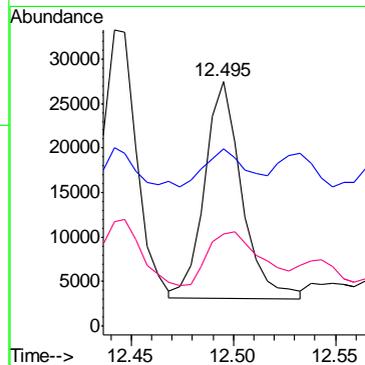
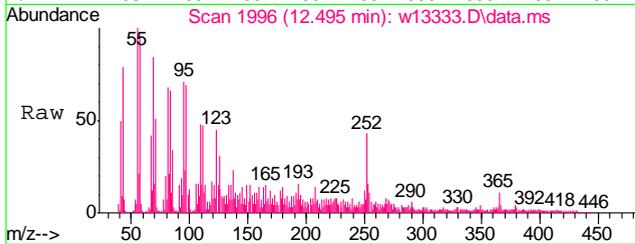
#95
 Benzo[k]fluoranthene
 Concen: 0.46 ppm
 RT: 12.175 min Scan# 1936
 Delta R.T. -0.112 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
252	100		
253	50.2	0.0	51.6
125	180.8	0.0	40.3#

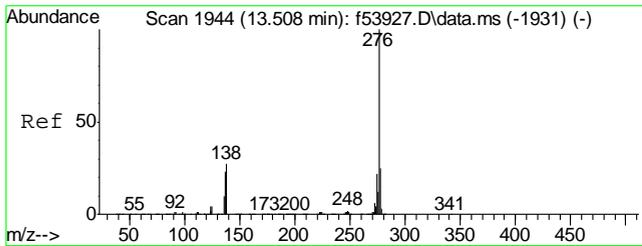


#96
 Benzo[a]pyrene
 Concen: 2.98 ppm
 RT: 12.495 min Scan# 1996
 Delta R.T. -0.098 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
252	100		
253	22.9	0.0	51.5
125	15.3	0.0	41.6

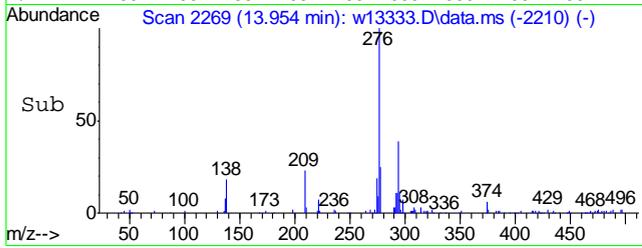
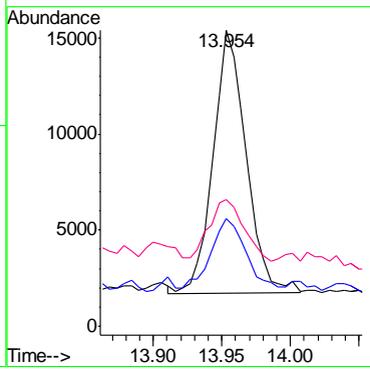
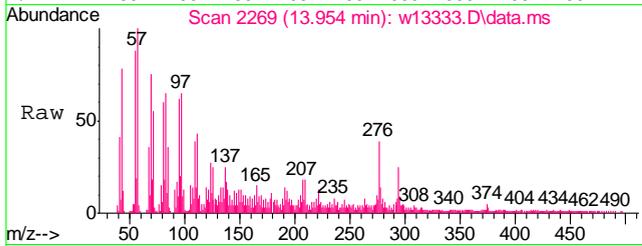


10.12
10



#99
 Benzo[g,h,i]perylene
 Concen: 2.07 ppm m
 RT: 13.954 min Scan# 2269
 Delta R.T. -0.187 min
 Lab File: w13333.D
 Acq: 26 Jun 2013 9:29 am

Tgt Ion	Resp	Lower	Upper
276	100		
138	42.9	0.0	54.4
277	36.2	0.0	53.5



10.12
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130716\
 Data File : W13941.D
 Acq On : 16 Jul 2013 4:36 pm
 Operator : kristinr
 Sample : JB39747-2
 Misc : OP33673,MSW632,20.81,,,5,20
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 16 16:53:37 2013
 Quant Method : W:\1\methods\W130626_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu Jul 11 14:07:03 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.754	152	143535	40.00	ppm	-0.12
21) 1,4-Dichlorobenzene-d4A	3.754	152	143535	40.00	PPM	-0.12
23) Naphthalene-d8	4.801	136	549464	40.00	ppm	-0.12
41) Naphthalene-d8a	4.801	136	549464	40.00	ppm	-0.12
43) Acenaphthene-d10	6.324	164	346066	40.00	ppm	-0.12
65) Acenaphthene-d10a	6.324	164	346545	40.00	ppm	-0.12
67) Phenanthrene-d10	7.670	188	579346	40.00	ppm	-0.14
80) Phenanthrene-d10a	7.670	188	579346	40.00	ppm	-0.14
82) Chrysene-d12	10.571	240	637321m	40.00	ppm	-0.16
92) Perylene-d12	12.147	264	621182	40.00	ppm	-0.16
100) Naphthalene-d8b	4.801	136	549464	40.00	ug/mL	-0.12
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0d	0.00	ppm	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	0.00%#
7) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	0.00%#
24) Nitrobenzene-d5	4.230	82	1793m	0.30	ppm	-0.11
Spiked Amount	50.000	Range	30 - 130	Recovery	=	0.60%#
48) 2-Fluorobiphenyl	5.747	172	4496	0.39	ppm	-0.12
Spiked Amount	50.000	Range	30 - 130	Recovery	=	0.78%#
71) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	0.00%#
85) Terphenyl-d14	9.390	244	6685	0.49	ppm	-0.15
Spiked Amount	50.000	Range	30 - 130	Recovery	=	0.98%#
Target Compounds						
33) Naphthalene	4.817	128	641095	45.20	ppm	99
38) 2-Methylnaphthalene	5.410	142	588218	63.29	ppm	93
39) 1-Methylnaphthalene	5.501	142	368765	40.50	ppm	94
75) Phenanthrene	7.691	178	304884m	20.27	ppm	

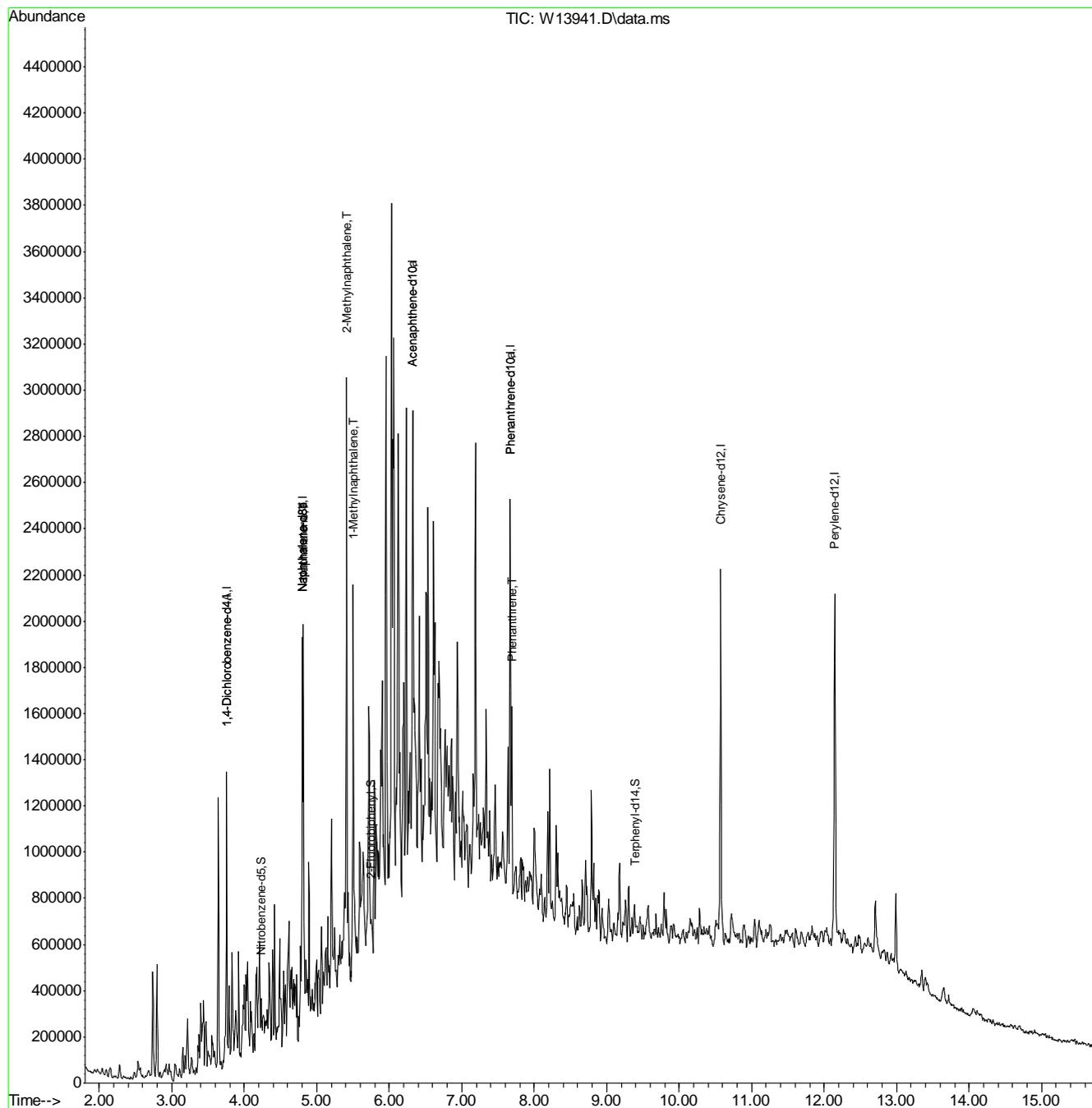
(#) = qualifier out of range (m) = manual integration (+) = signals summed

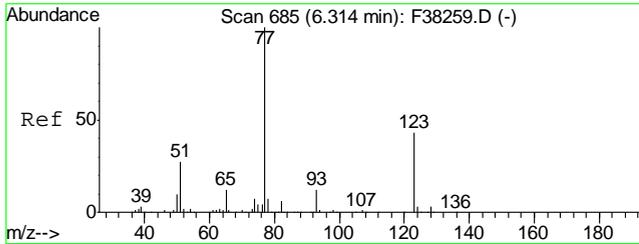
10.1.3
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\W130716\
Data File : W13941.D
Acq On : 16 Jul 2013 4:36 pm
Operator : kristinr
Sample : JB39747-2
Misc : OP33673,MSW632,20.81,,,5,20
ALS Vial : 19 Sample Multiplier: 1

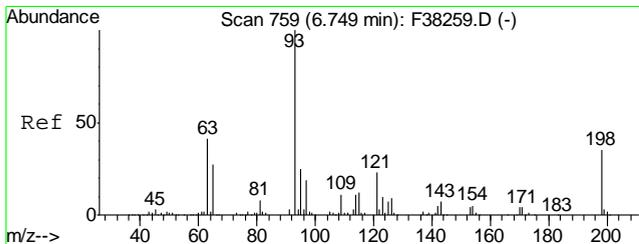
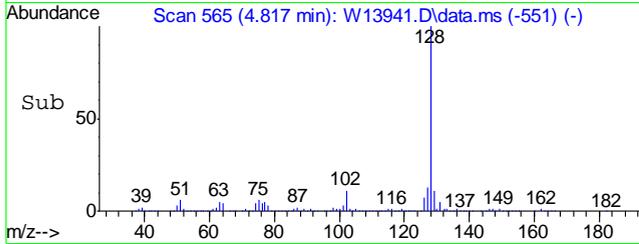
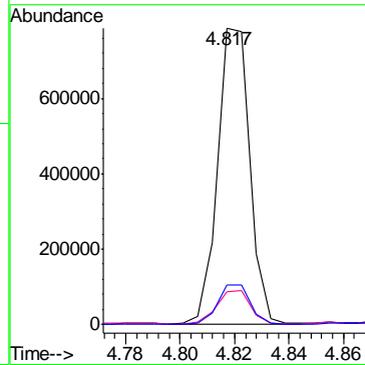
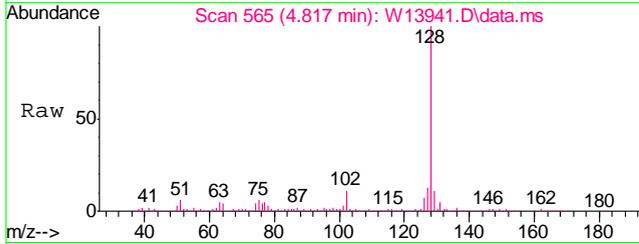
Quant Time: Jul 16 16:53:37 2013
Quant Method : W:\1\methods\W130626_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Thu Jul 11 14:07:03 2013
Response via : Initial Calibration





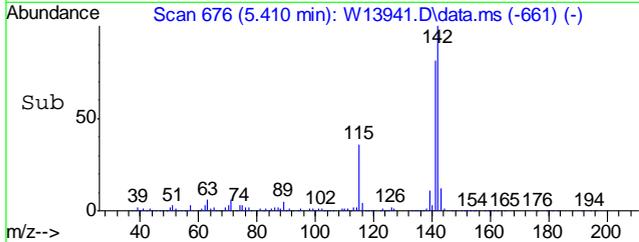
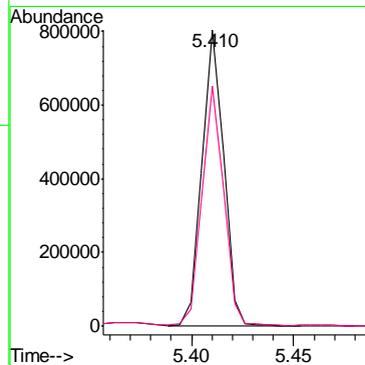
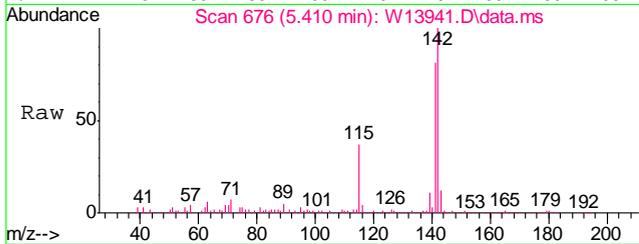
#33
 Naphthalene
 Concen: 45.20 ppm
 RT: 4.817 min Scan# 565
 Delta R.T. -0.124 min
 Lab File: W13941.D
 Acq: 16 Jul 2013 4:36 pm

Tgt Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	40.9
127	13.4	0.0	42.9

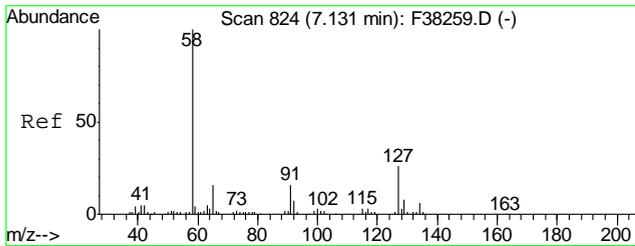


#38
 2-Methylnaphthalene
 Concen: 63.29 ppm
 RT: 5.410 min Scan# 676
 Delta R.T. -0.119 min
 Lab File: W13941.D
 Acq: 16 Jul 2013 4:36 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	80.8	57.6	117.6

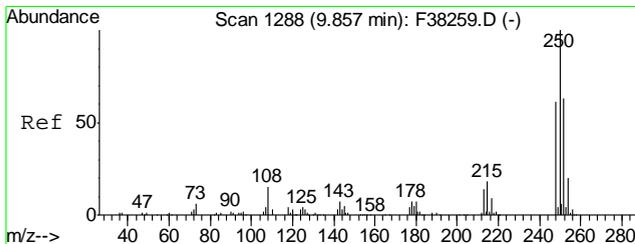
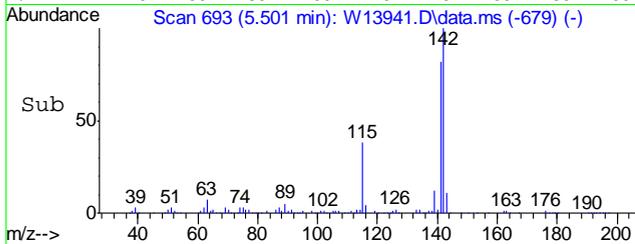
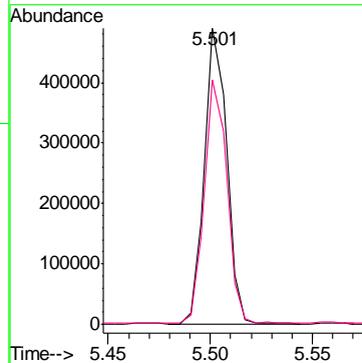
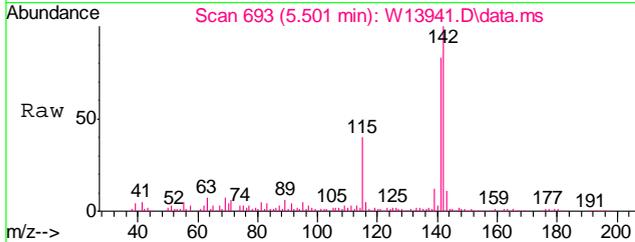


10.1.3
 10



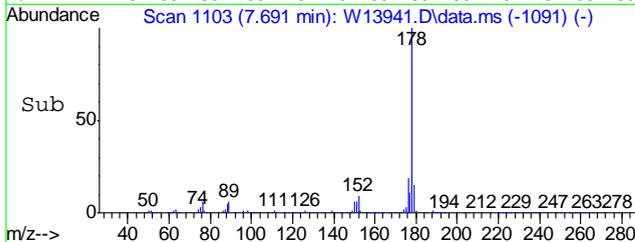
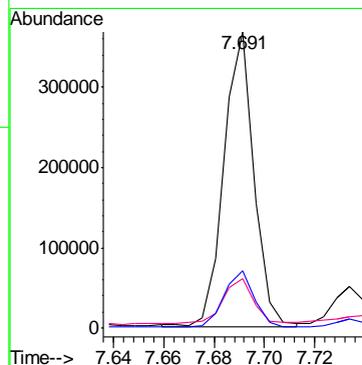
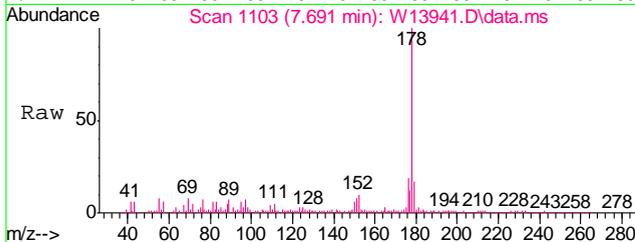
#39
 1-Methylnaphthalene
 Concen: 40.50 ppm
 RT: 5.501 min Scan# 693
 Delta R.T. -0.124 min
 Lab File: W13941.D
 Acq: 16 Jul 2013 4:36 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	82.5	68.5	108.5



#75
 Phenanthrene
 Concen: 20.27 ppm m
 RT: 7.691 min Scan# 1103
 Delta R.T. -0.135 min
 Lab File: W13941.D
 Acq: 16 Jul 2013 4:36 pm

Tgt Ion	Ratio	Lower	Upper
178	100		
179	16.5	0.0	45.7
176	19.4	0.0	49.6



10.1.3
10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130620\
 Data File : R31622.D
 Acq On : 20 Jun 2013 5:41 pm
 Operator : kristinr
 Sample : op33673-mb
 Misc : op33673,msr1151,20.09,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 29 12:32:05 2013
 Quant Method : W:\1\methods\R130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Tue Jun 25 14:19:44 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.981	152	21378	40.00	ppm	0.01
21) 1,4-Dichlorobenzene-d4A	3.981	152	21378	40.00	PPM	0.01
23) Naphthalene-d8	5.028	136	75973	40.00	ppm	0.00
41) Naphthalene-d8a	5.028	136	75973	40.00	ppm	0.00
43) Acenaphthene-d10	6.551	164	45910	40.00	ppm	0.00
65) Acenaphthene-d10a	6.551	164	45910	40.00	ppm	0.00
67) Phenanthrene-d10	7.916	188	78009	40.00	ppm	0.00
80) Phenanthrene-d10a	7.916	188	78009	40.00	ppm	0.00
82) Chrysene-d12	10.845	240	87795	40.00	ppm	0.00
92) Perylene-d12	12.433	264	83192	40.00	ppm	0.01
100) Naphthalene-d8b	5.028	136	75973	40.00	ug/mL #	0.02
System Monitoring Compounds						
5) 2-Fluorophenol	3.051	112	30441	43.52	ppm	0.00
Spiked Amount	100.000	Range	30 - 130	Recovery	=	43.52%
7) Phenol-d5	3.740	99	37194	41.36	ppm	0.01
Spiked Amount	100.000	Range	30 - 130	Recovery	=	41.36%
24) Nitrobenzene-d5	4.451	82	32499	42.96	ppm	0.00
Spiked Amount	50.000	Range	30 - 130	Recovery	=	85.92%
48) 2-Fluorobiphenyl	5.963	172	77421	47.91	ppm	0.00
Spiked Amount	50.000	Range	30 - 130	Recovery	=	95.82%
71) 2,4,6-Tribromophenol	7.275	330	11380	45.41	ppm	0.01
Spiked Amount	100.000	Range	30 - 130	Recovery	=	45.41%
85) Terphenyl-d14	9.639	244	100600	50.88	ppm	0.01
Spiked Amount	50.000	Range	30 - 130	Recovery	=	101.76%

Target Compounds Qvalue

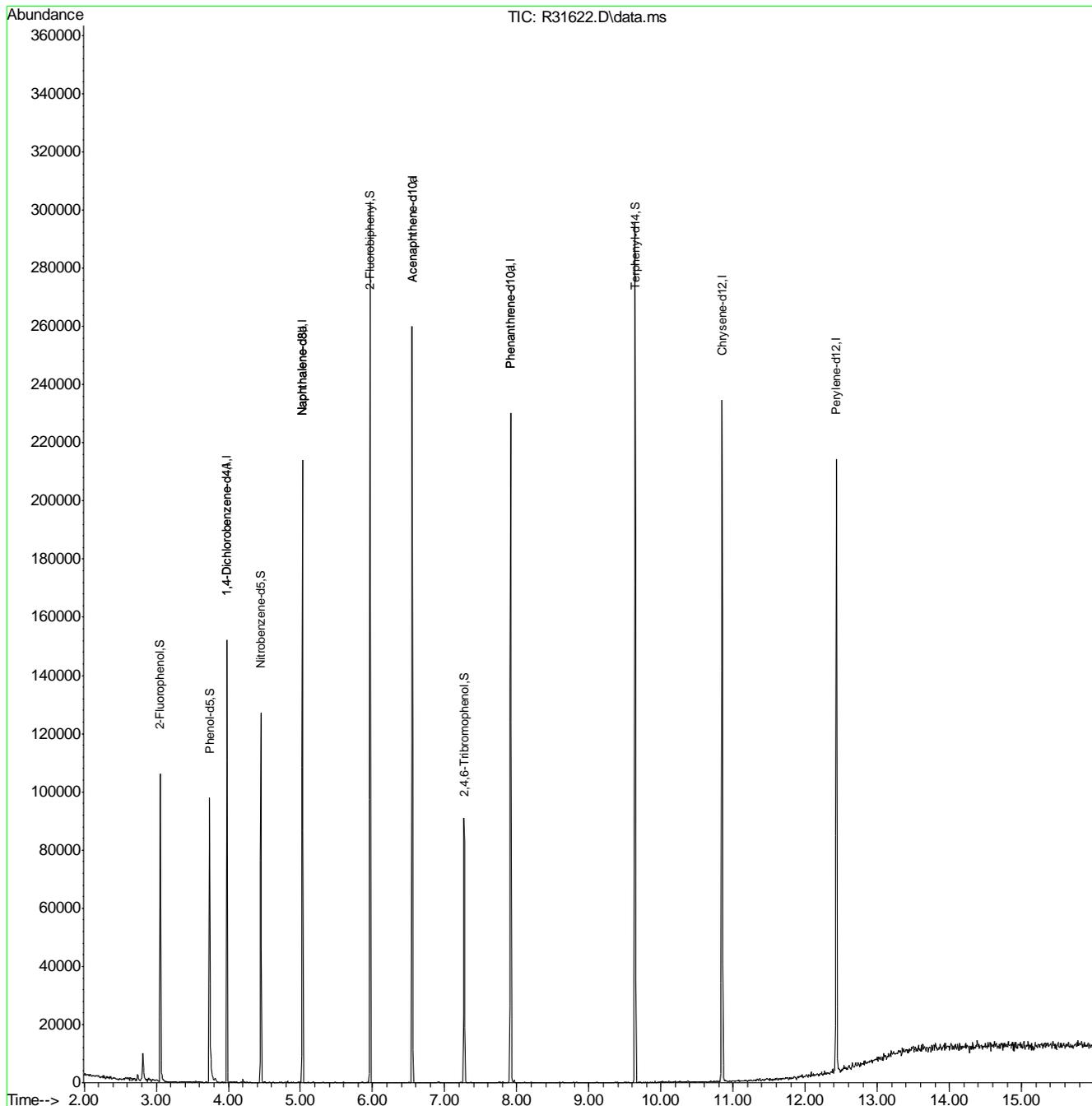
(#) = qualifier out of range (m) = manual integration (+) = signals summed

10.2.1 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130620\
 Data File : R31622.D
 Acq On : 20 Jun 2013 5:41 pm
 Operator : kristinr
 Sample : op33673-mb
 Misc : op33673,msr1151,20.09,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 29 12:32:05 2013
 Quant Method : W:\1\methods\R130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Tue Jun 25 14:19:44 2013
 Response via : Initial Calibration



10.2.1
 10

GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33671-MB	BB48728.D	1	06/19/13	AP	06/18/13	OP33671	GBB2907

The QC reported here applies to the following samples:

Method: SW846 8011

JB39747-1, JB39747-2

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	2.5	0.95	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	104%	61-167%
460-00-4	Bromofluorobenzene (S)	159%	61-167%

Blank Spike Summary

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33671-BS	BB48729.D	1	06/19/13	AP	06/18/13	OP33671	GBB2907

The QC reported here applies to the following samples:

Method: SW846 8011

JB39747-1, JB39747-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	3.30	4.0	121	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	124%	61-167%
460-00-4	Bromofluorobenzene (S)	148%	61-167%

11.2.1

11

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33671-MS	BB48730.D	1	06/19/13	AP	06/18/13	OP33671	GBB2907
OP33671-MSD	BB48731.D	1	06/19/13	AP	06/18/13	OP33671	GBB2907
JB39439-1	BB48732.D	1	06/19/13	AP	06/18/13	OP33671	GBB2907

The QC reported here applies to the following samples:

Method: SW846 8011

JB39747-1, JB39747-2

CAS No.	Compound	JB39439-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND	3.66	5.0	137	4.6	125	8	48-141/27	

CAS No.	Surrogate Recoveries	MS	MSD	JB39439-1	Limits
460-00-4	Bromofluorobenzene (S)	146%	219%* a	99%	61-167%
460-00-4	Bromofluorobenzene (S)	172%* a	166%	140%	61-167%

(a) Outside control limits due to possible matrix interference.

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB39747

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
JB39747-1	BB48739.D	156.0	171.0* ^c
JB39747-2	BB48740.D	240.0* ^c	183.0* ^c
OP33671-BS	BB48729.D	124.0	148.0
OP33671-MB	BB48728.D	104.0	159.0
OP33671-MS	BB48730.D	146.0	172.0* ^c
OP33671-MSD	BB48731.D	219.0* ^c	166.0

Surrogate Compounds Recovery Limits

S1 = Bromofluorobenzene (S) 61-167%

- (a) Recovery from GC signal #2
- (b) Recovery from GC signal #1
- (c) Outside control limits due to possible matrix interference.

11.4.1
11

GC Surrogate Retention Time Summary

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	GBB2907-ICC2907	Injection Date:	06/19/13
Lab File ID:	BB48722.D	Injection Time:	11:44
Instrument ID:	GCBB	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.98	4.71
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP33671-MB	BB48728.D	06/19/13	14:32	4.96	4.72
OP33671-BS	BB48729.D	06/19/13	14:59	4.96	4.71
OP33671-MS	BB48730.D	06/19/13	15:28	4.96	4.72
OP33671-MSD	BB48731.D	06/19/13	15:56	4.97	4.72
JB39439-1	BB48732.D	06/19/13	16:24	4.96	4.72
ZZZZZZ	BB48733.D	06/19/13	16:51	4.96	4.72
ZZZZZZ	BB48734.D	06/19/13	17:18	4.96	4.72
ZZZZZZ	BB48735.D	06/19/13	17:47	4.93	4.71
ZZZZZZ	BB48736.D	06/19/13	18:15	4.94	4.71
ZZZZZZ	BB48737.D	06/19/13	18:42	4.93	4.71

Surrogate Compounds

S1 = Bromofluorobenzene (S)

- (a) Retention time from GC signal #2
- (b) Retention time from GC signal #1

11.5.1
11

GC Surrogate Retention Time Summary

Job Number: JB39747
 Account: ALNJ Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	GBB2907-CC2907	Injection Date:	06/19/13
Lab File ID:	BB48738.D	Injection Time:	19:10
Instrument ID:	GCB	Method:	SW846 8011

S1^a S1^b
 RT RT

Check Std	4.93	4.71
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
JB39747-1	BB48739.D	06/19/13	19:38	4.93	4.72
JB39747-2	BB48740.D	06/19/13	20:06	4.92	4.71
OP33624-MB	BB48742.D	06/19/13	21:03	4.92	4.72
ZZZZZZ	BB48743.D	06/19/13	21:36	4.93	4.72
ZZZZZZ	BB48744.D	06/19/13	22:08	4.93	4.72
GBB2907-ECC2907	BB48745.D	06/19/13	22:39	4.92	4.72

Surrogate Compounds

S1 = Bromofluorobenzene (S)

- (a) Retention time from GC signal #2
- (b) Retention time from GC signal #1

11.5.2
 11

Initial Calibration Summary

Job Number: JB39747

Sample: GBB2907-ICC2907

Account: ALNJ Accutest New Jersey

Lab FileID: BB48722.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report GCB

Method : C:\msdchem\1\METHODS\ES130619.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Wed Jun 19 14:10:04 2013
Response via : Initial Calibration

Calibration Files

1 =bb48721.d 2 =bb48722.d 3 =bb48723.d 4 =bb48724.d
5 =bb48725.d 6 =bb48726.d

Compound	1	2	3	4	5	6	Avg	%RSD
1) 1,2-Dibromoethane	2.787	2.975	3.022	2.874	2.882	2.963	2.917	E5 2.93
2) s 4-Bromofluorobenzen	1.442	1.430	1.406	1.431	1.446	1.393	1.425	E4 1.46
3) 1,2-Dibromo-3-chlor	6.439	6.727	6.852	6.599	6.846	6.513	6.662	E5 2.60

Signal #2

1) 1,2-Dibromoethane	3.694	3.982	4.120	3.936	3.944	3.959	3.939	E5 3.49
2) s 4-Bromofluorobenzen	1.331	1.302	1.316	1.300	1.326	1.266	1.307	E4 1.80
3) 1,2-Dibromo-3-chlor	7.079	7.154	7.382	6.988	7.240	6.991	7.139	E5 2.15

(#) = Out of Range

ES130619.M

Thu Jun 20 08:22:46 2013

11.6.1

11

Initial Calibration Verification

Job Number: JB39747

Sample: GBB2907-ICV2907

Account: ALNJ Accutest New Jersey

Lab FileID: BB48727.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\Bb...19\bb48727.d\ECD1A.CH Vial: 82
Signal #2 : C:\msdchem\1\DATA\Bb130619\bb48727.d\ECD2B.CH
Acq On : 19-Jun-13, 14:04:25 Operator: andrip
Sample : icv2907-20,std-7 Inst : GCBB
Misc : op33671,gb2907,30,,,50,,s Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: events2.e

Method : C:\msdchem\1\METHODS\ES130619.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Wed Jun 19 14:10:04 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	291.715	316.033 E3	-8.3	106	0.00	3.68-	3.74
2 s	4-Bromofluorobenzene	14.248	15.117 E3	-6.1	106	0.00	4.69-	4.75
3	1,2-Dibromo-3-chloropr	666.243	695.478 E3	-4.4	103	0.00	6.35-	6.41

***** Signal #2 *****

1	1,2-Dibromoethane	393.905	426.505 E3	-8.3	107	0.00	3.76-	3.82
2 s	4-Bromofluorobenzene	13.069	14.306 E3	-9.5	110	-0.03	4.91-	4.97
3	1,2-Dibromo-3-chloropr	713.912	749.060 E3	-4.9	105	0.00	6.31-	6.37

(#) = Out of Range SPCC's out = 0 CCC's out = 0
bb48722.d ES130619.M Thu Jun 20 08:22:41 2013

Continuing Calibration Summary

Job Number: JB39747

Sample: GBB2907-CC2907

Account: ALNJ Accutest New Jersey

Lab FileID: BB48738.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\Bb...19\bb48738.d\ECD1A.CH Vial: 77
Signal #2 : C:\msdchem\1\DATA\Bb130619\bb48738.d\ECD2B.CH
Acq On : 19-Jun-13, 19:10:29 Operator: andrip
Sample : cc2907-20,std-2 Inst : GCBB
Misc : op33671,gb2907,30,,,50,,s Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: events2.e

Method : C:\msdchem\1\METHODS\ES130619.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Wed Jun 19 14:10:04 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	291.715	307.797 E3	-5.5	103	0.00	3.68-	3.74
2 s	4-Bromofluorobenzene	14.248	16.237 E3	-14.0	114	0.00	4.68-	4.74
3	1,2-Dibromo-3-chloropr	666.243	697.809 E3	-4.7	104	0.00	6.35-	6.41

***** Signal #2 *****

1	1,2-Dibromoethane	393.905	394.602 E3	-0.2	99	-0.01	3.75-	3.81
2 s	4-Bromofluorobenzene	13.069	13.718 E3	-5.0	105	-0.05	4.90-	4.96
3	1,2-Dibromo-3-chloropr	713.912	735.368 E3	-3.0	103	0.00	6.30-	6.36

(#) = Out of Range SPCC's out = 0 CCC's out = 0
bb48722.d ES130619.M Thu Jun 20 08:32:40 2013

Continuing Calibration Summary

Job Number: JB39747

Sample: GBB2907-ECC2907

Account: ALNJ Accutest New Jersey

Lab FileID: BB48745.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\1\DATA\Bb...19\bb48745.d\ECD1A.CH Vial: 77
Signal #2 : C:\msdchem\1\DATA\Bb130619\bb48745.d\ECD2B.CH
Acq On : 19-Jun-13, 22:39:57 Operator: andrip
Sample : ecc2907-20,std-2 Inst : GCBB
Misc : op33624,gb2907,30,,,50,,s Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: events2.e

Method : C:\msdchem\1\METHODS\ES130619.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Wed Jun 19 14:10:04 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 115%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	291.715	303.487 E3	-4.0	102	0.00	3.68-	3.74
2 s	4-Bromofluorobenzene	14.248	16.197 E3	-13.7	113	0.00	4.69-	4.75
3	1,2-Dibromo-3-chloropr	666.243	622.407 E3	6.6	93	0.00	6.35-	6.41

***** Signal #2 *****

1	1,2-Dibromoethane	393.905	373.527 E3	5.2	94	-0.02	3.74-	3.80
2 s	4-Bromofluorobenzene	13.069	14.935 E3	-14.3	115	-0.05	4.89-	4.95
3	1,2-Dibromo-3-chloropr	713.912	659.513 E3	7.6	92	-0.01	6.30-	6.36

(#) = Out of Range SPCC's out = 0 CCC's out = 0
bb48722.d ES130619.M Thu Jun 20 08:35:15 2013

11.64

11

GC Volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130619\
 Data File : bb48739.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 19-Jun-13, 19:38:12
 Operator : andrip
 Sample : jb39747-1,op33671
 Misc : op33671,gb2907,30.46,,,50,,s
 ALS Vial : 11 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jun 20 08:32:57 2013
 Quant Method : C:\msdchem\1\METHODS\ES130619.M
 Quant Title : v801ledb soil
 QLast Update : Wed Jun 19 14:10:04 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.716	4.933f	1215957	1017974	85.342m	77.890m
Spiked Amount	50.000	Range 60 - 140	Recovery	=	170.68%#	155.78%#
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

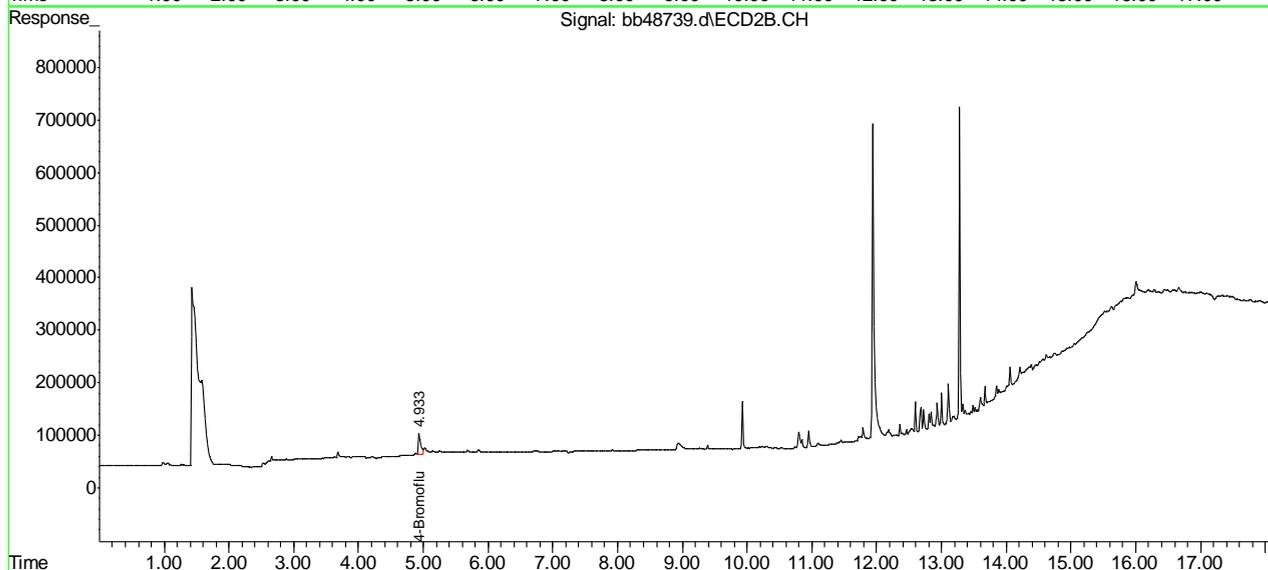
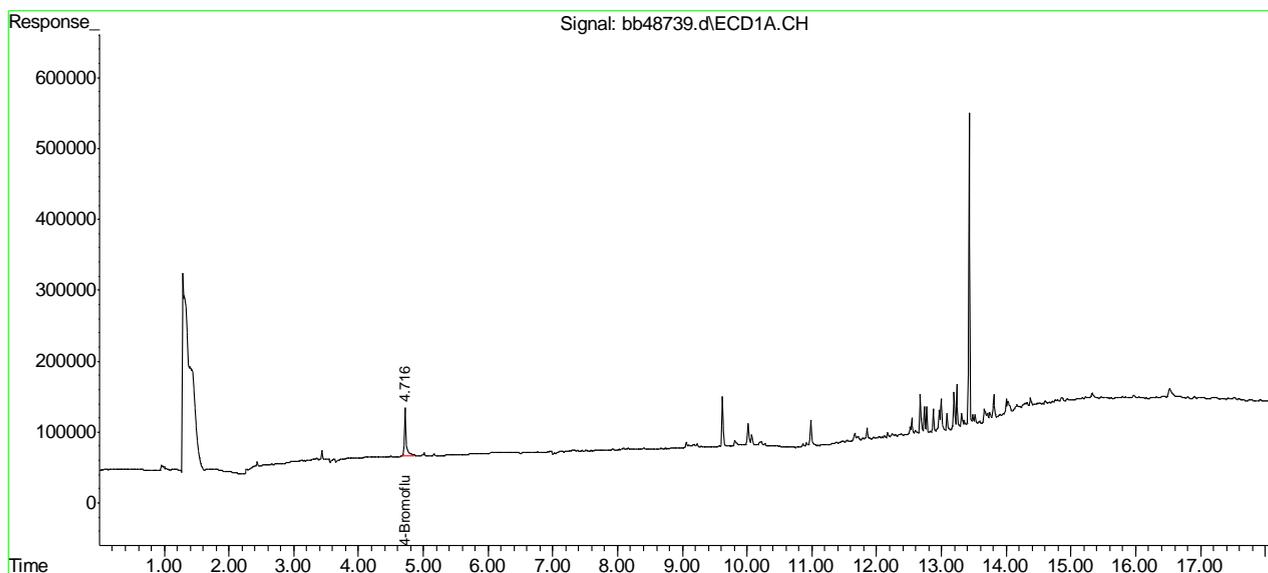
12.1.1
12

Quantitation Report (QT Reviewed)

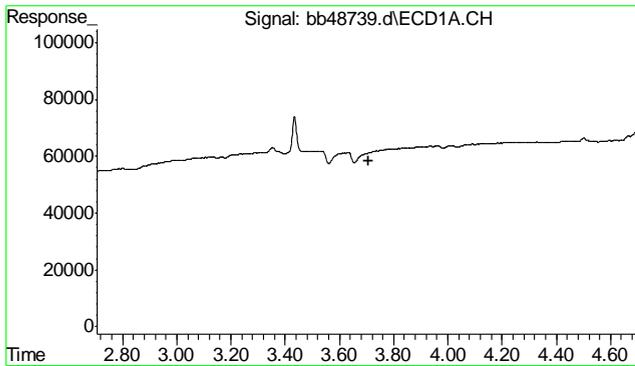
Data Path : C:\msdchem\1\DATA\Bb130619\
 Data File : bb48739.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 19-Jun-13, 19:38:12
 Operator : andrip
 Sample : jb39747-1,op33671
 Misc : op33671,gb2907,30.46,,,50,,s
 ALS Vial : 11 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jun 20 08:32:57 2013
 Quant Method : C:\msdchem\1\METHODS\ES130619.M
 Quant Title : v801ledb soil
 QLast Update : Wed Jun 19 14:10:04 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

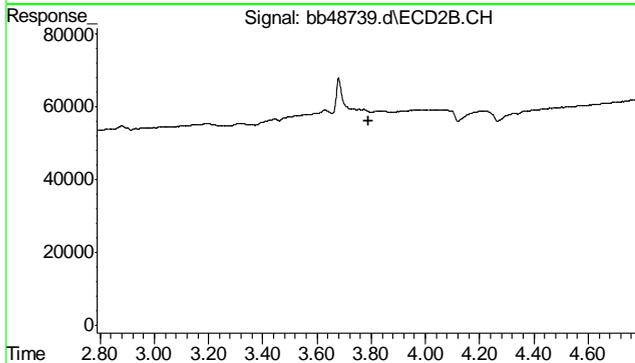
Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :



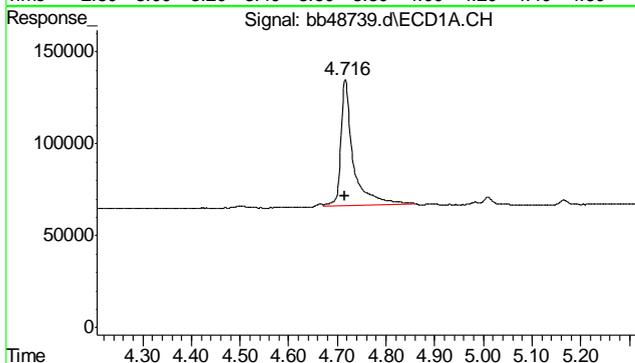
12.1.1
12



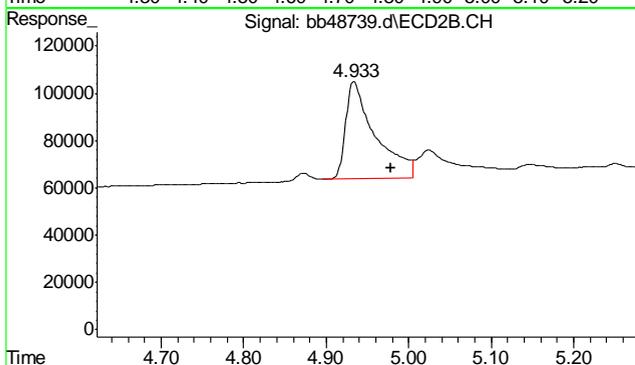
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T.: 3.706 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T.: 3.788 min
 Response: 0
 Conc: N.D.

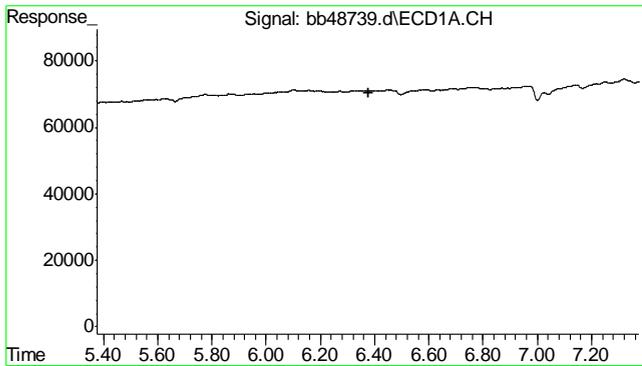


#2 4-Bromofluorobenzene
 R.T.: 4.716 min
 Delta R.T.: 0.001 min
 Response: 1215957
 Conc: 85.34 ug/L m

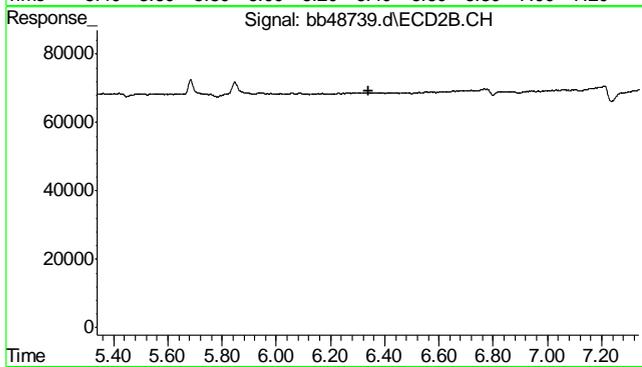


#2 4-Bromofluorobenzene
 R.T.: 4.933 min
 Delta R.T.: -0.045 min
 Response: 1017974
 Conc: 77.89 ug/L m

12.1.1
12



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.376 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.339 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130619\
 Data File : bb48740.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 19-Jun-13, 20:06:14
 Operator : andrip
 Sample : jb39747-2,op33671
 Misc : op33671,gb2907,30.39,,,50,,s
 ALS Vial : 12 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jun 20 08:33:24 2013
 Quant Method : C:\msdchem\1\METHODS\ES130619.M
 Quant Title : v801ledb soil
 QLast Update : Wed Jun 19 14:10:04 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.713	4.923f	1301942	1566485	91.377m	119.860m#
Spiked Amount	50.000	Range 60 - 140	Recovery	=	182.75%#	239.72%#
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

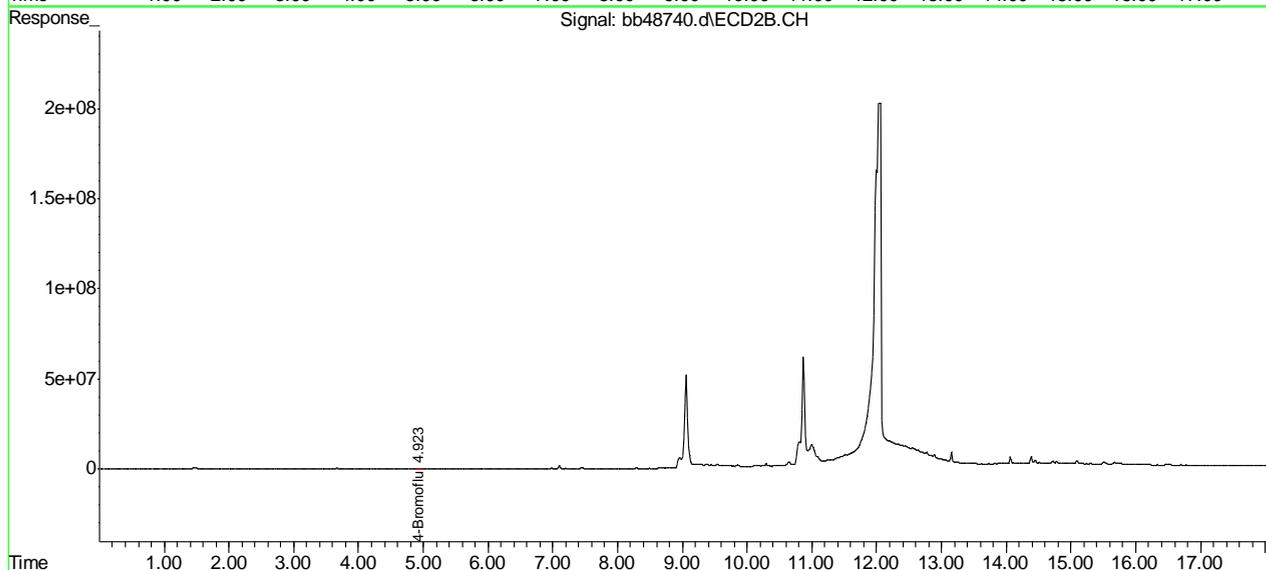
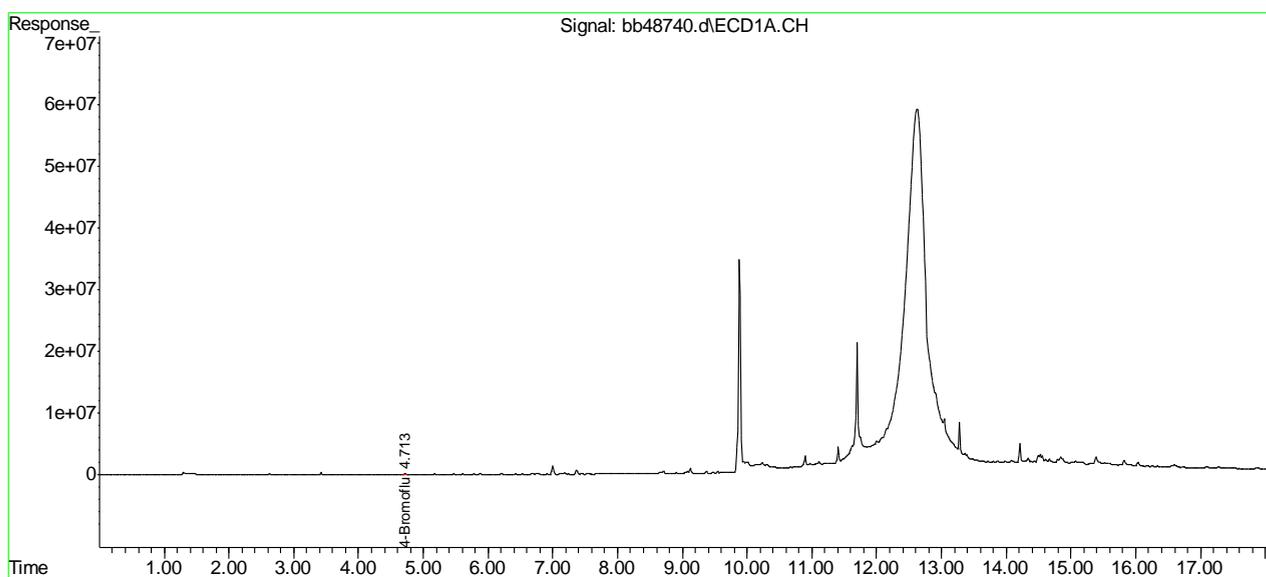
12.12
12

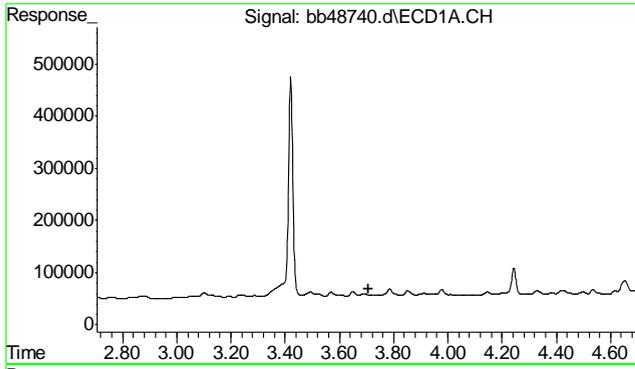
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130619\
Data File : bb48740.d
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 19-Jun-13, 20:06:14
Operator : andrip
Sample : jb39747-2,op33671
Misc : op33671,gb2907,30.39,,,50,,s
ALS Vial : 12 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

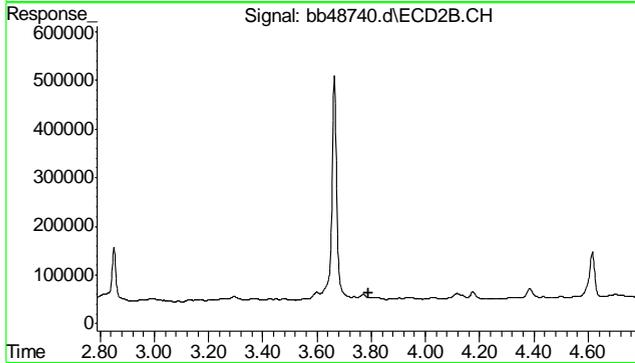
Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: Jun 20 08:33:24 2013
Quant Method : C:\msdchem\1\METHODS\ES130619.M
Quant Title : v801ledb soil
QLast Update : Wed Jun 19 14:10:04 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

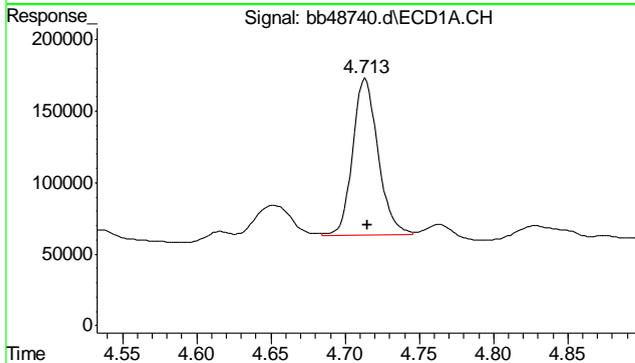




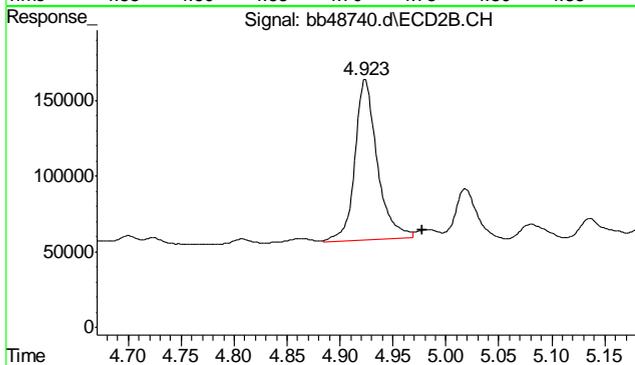
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.706 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.788 min
 Response: 0
 Conc: N.D.

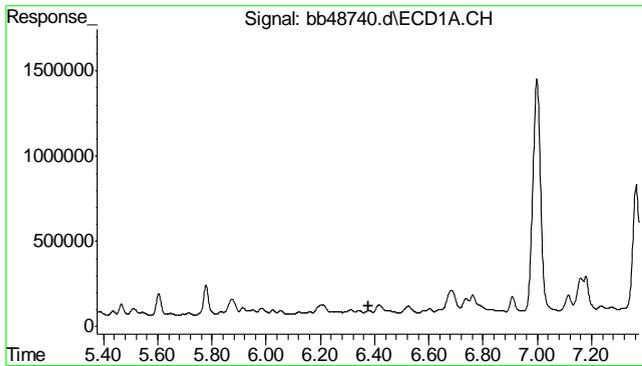


#2 4-Bromofluorobenzene
 R.T.: 4.713 min
 Delta R.T.: -0.002 min
 Response: 1301942
 Conc: 91.38 ug/L m

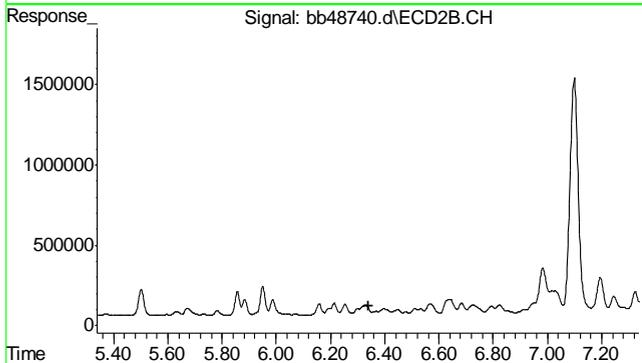


#2 4-Bromofluorobenzene
 R.T.: 4.923 min
 Delta R.T.: -0.055 min
 Response: 1566485
 Conc: 119.86 ug/L m

12.1.2 12



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.376 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.339 min
Response: 0
Conc: N.D.

12.1.2
12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130619\
 Data File : bb48728.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 19-Jun-13, 14:32:09
 Operator : andrip
 Sample : op33671-mb
 Misc : op33671,gb2907,30.33,,,50,,s
 ALS Vial : 1 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jun 20 08:24:20 2013
 Quant Method : C:\msdchem\1\METHODS\ES130619.M
 Quant Title : v801ledb soil
 QLast Update : Wed Jun 19 14:10:04 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.715	4.961f	1136204	676778	79.744m	51.784m#
Spiked Amount	50.000	Range	60 - 140	Recovery	= 159.49%#	103.57%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

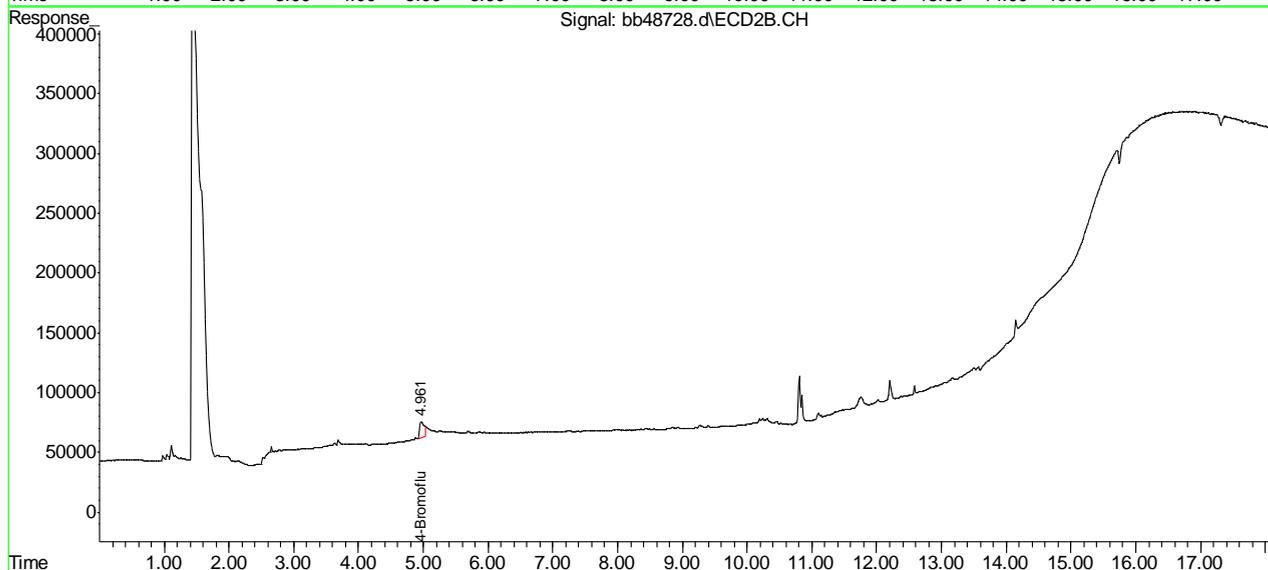
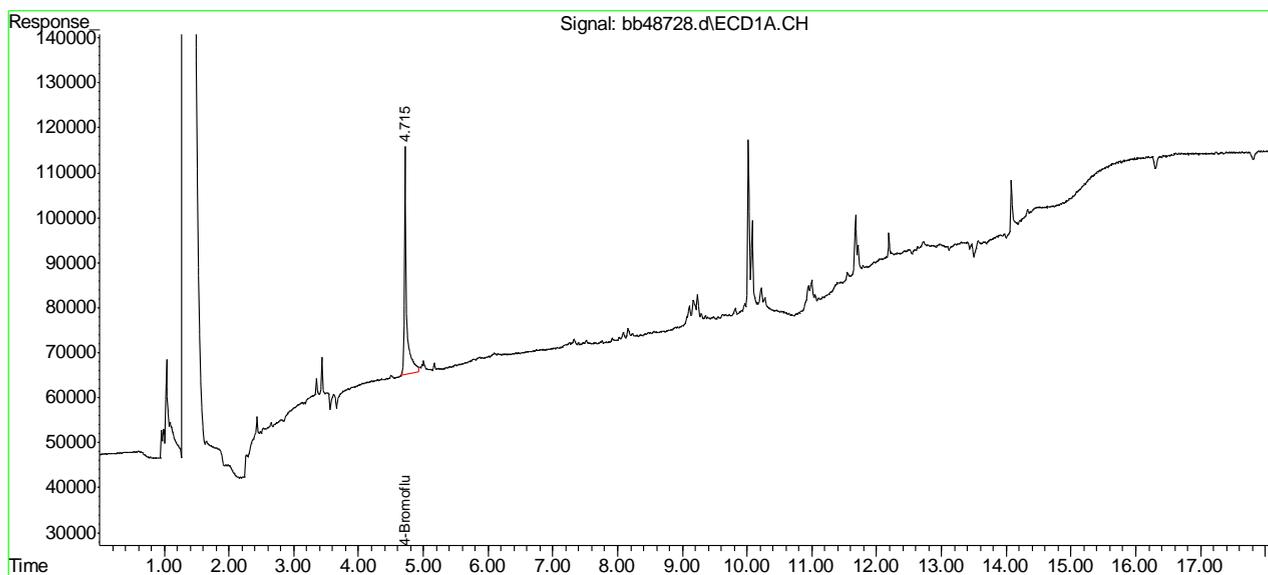
12.2.1
12

Quantitation Report (QT Reviewed)

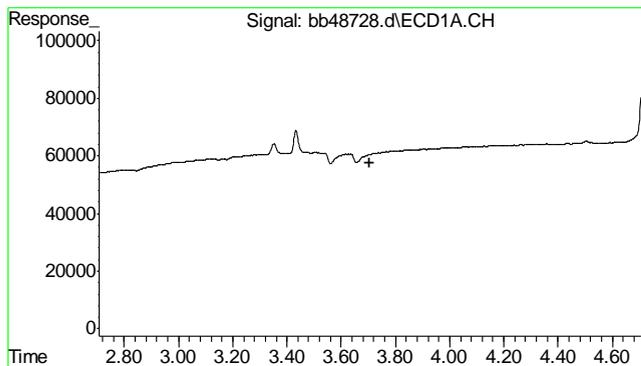
Data Path : C:\msdchem\1\DATA\Bb130619\
 Data File : bb48728.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 19-Jun-13, 14:32:09
 Operator : andrip
 Sample : op33671-mb
 Misc : op33671,gb2907,30.33,,,50,,,s
 ALS Vial : 1 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: Jun 20 08:24:20 2013
 Quant Method : C:\msdchem\1\METHODS\ES130619.M
 Quant Title : v801ledb soil
 QLast Update : Wed Jun 19 14:10:04 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

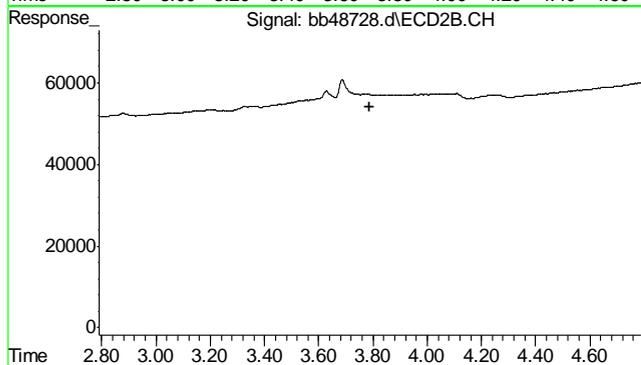
Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :



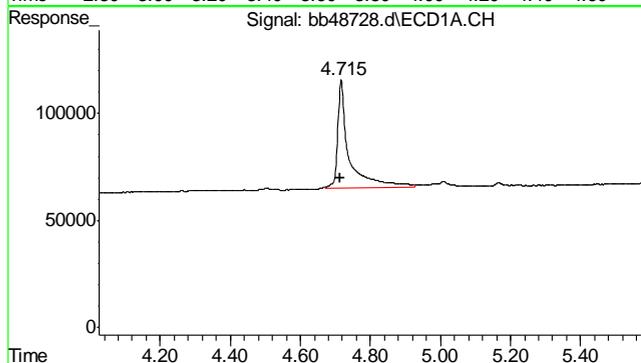
12.2.1
 12



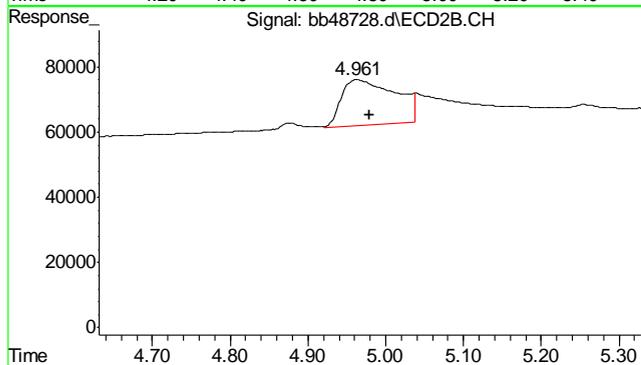
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T.: 3.706 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T.: 3.788 min
 Response: 0
 Conc: N.D.

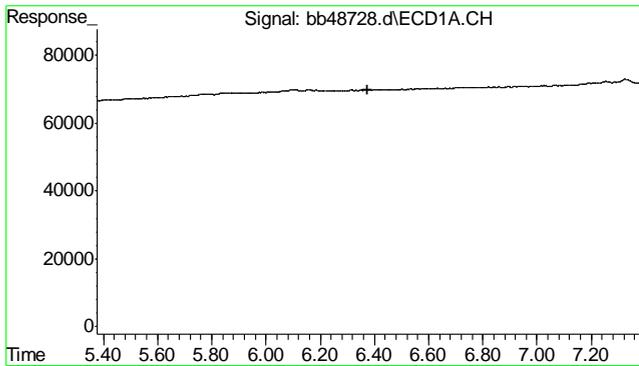


#2 4-Bromofluorobenzene
 R.T.: 4.715 min
 Delta R.T.: 0.000 min
 Response: 1136204
 Conc: 79.74 ug/L m

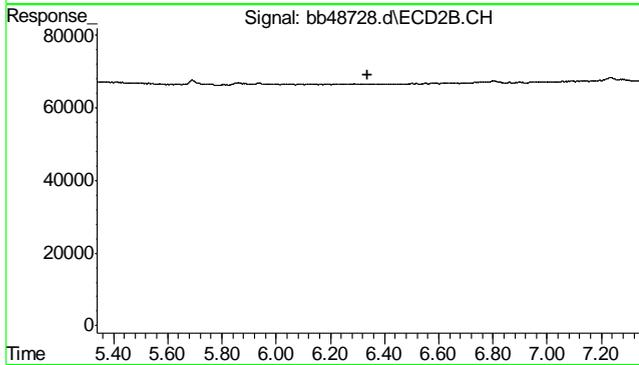


#2 4-Bromofluorobenzene
 R.T.: 4.961 min
 Delta R.T.: -0.017 min
 Response: 676778
 Conc: 51.78 ug/L m

12.2.1
12



#3 1,2-Dibromo-3-chloropropane
 R.T.: 0.000 min
 Exp R.T. : 6.376 min
 Response: 0
 Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
 R.T.: 0.000 min
 Exp R.T. : 6.339 min
 Response: 0
 Conc: N.D.

Metals Analysis

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB39747

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP

Date Analyzed: 06/19/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15773

Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:11	MA15773-STD1	1		STD1
16:16	MA15773-STD2	1		STD2
16:20	MA15773-STD3	1		STD3
16:25	MA15773-STD4	1		STD4
16:30	MA15773-ICV1	1		
16:39	MA15773-ICB1	1		
16:45	MA15773-CCV1	1		
16:53	MA15773-CCB1	1		
17:02	MA15773-CRI1	1		
17:08	MA15773-ICSA1	1		
17:13	MA15773-ICSAB1	1		
17:18	MP21193-B1	1		
17:23	MP21193-MB1	1		
17:28	MP21193-S1	1		
17:33	MP21193-S2	1		
17:37	MC21765-2	1		(sample used for QC only; not part of login JB39747)
17:42	MP21193-SD1	5		
17:47	MP21193-B2	1		
17:52	MA15773-CCV2	1		
17:57	MA15773-CCB2	1		
18:01	MP21193-MB2	1		
18:06	MP21193-MB3	1		
18:11	ZZZZZZ	1		
18:16	ZZZZZZ	1		
18:21	ZZZZZZ	1		
18:26	ZZZZZZ	1		
18:31	ZZZZZZ	1		
18:36	ZZZZZZ	1		
18:41	ZZZZZZ	1		
18:46	ZZZZZZ	1		
18:51	MA15773-CCV3	1		
18:55	MA15773-CCB3	1		
19:00	ZZZZZZ	1		

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Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15773
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:05	ZZZZZZ	1		
19:10	ZZZZZZ	1		
19:15	ZZZZZZ	1		
19:20	ZZZZZZ	1		
19:25	ZZZZZZ	1		
19:30	ZZZZZZ	1		
19:35	ZZZZZZ	1		
19:40	ZZZZZZ	1		
19:45	ZZZZZZ	1		
19:50	MA15773-CCV4	1		
19:55	MA15773-CCB4	1		
20:00	ZZZZZZ	1		
20:05	MA15773-CRI2	1		
20:10	MA15773-ICSA2	1		
20:15	MA15773-ICSAB2	1		
20:19	MA15773-CCV5	1		AL, BA, BE & FE HIGH RSD.
20:24	MA15773-CCB5	1		
20:29	MA15773-CRIA1	1		
20:34	MP21207-B1	1		BA & BE HIGH RSD ON CCV5.
20:39	MP21207-MB1	1		BA & BE HIGH RSD ON CCV5.
20:44	MP21207-S1	1		MS OUT FOR SB, NEED PS; BA & BE HIGH RSD ON CCV5.
20:48	MP21207-S2	1		BA & BE HIGH RSD ON CCV5.
20:53	MC21882-15	1		(sample used for QC only; not part of login JB39747)
20:58	MP21207-SD1	5		BA & BE HIGH RSD ON CCV5.
21:03	MP21207-B2	1		BA & BE HIGH RSD ON CCV5.
21:08	MP21207-LC1	1		BA & BE HIGH RSD ON CCV5.
21:13	MP21207-S3	1		MS OUT FOR SB, MO & SN,NEED PS; BA & BE HIGH RSD ON CCV5.
21:17	MA15773-CCV6	1		
21:22	MA15773-CCB6	1		
21:27	MP21207-S4	1		BA & BE HIGH RSD ON CCV7.
21:32	MC21824-1	1		(sample used for QC only; not part of login JB39747)
21:37	JB39747-1	1		
21:42	JB39747-2	1		
----->	Last reportable sample/prep for job JB39747			

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Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB39747

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP

Date Analyzed: 06/19/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15773

Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:47	ZZZZZZ	1		
21:52	ZZZZZZ	1		
21:57	ZZZZZZ	1		
22:02	ZZZZZZ	1		
22:07	ZZZZZZ	1		
22:12	ZZZZZZ	1		
22:16	MA15773-CCV7	1		AL, BA, BE & FE HIGH RSD.
22:21	MA15773-CCB7	1		
22:26	ZZZZZZ	1		
22:31	ZZZZZZ	1		
22:36	ZZZZZZ	1		
22:41	ZZZZZZ	1		
22:45	ZZZZZZ	1		
22:50	ZZZZZZ	1		
22:55	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:05	ZZZZZZ	1		
23:10	MP21205-B1	1		AL, BA, BE & FE HIGH RSD ON CCV7; AG HIGH RSD ON CCV8.
23:14	MA15773-CCV8	1		AG HIGH RSD.
23:19	MA15773-CCB8	1		
23:24	MP21205-MB1	1		AG HIGH RSD ON CCV8.
23:29	MP21205-S1	1		CA OVER RANGE; MS OUT FOR SB, NEED PS; AG HIGH RSD ON CCV8.
23:34	MP21205-S2	1		CA OVER RANGE; AG HIGH RSD ON CCV8.
23:39	MC21756-9	1		(sample used for QC only; not part of login JB39747)
23:44	MP21205-SD1	5		AG HIGH RSD ON CCV8.
23:49	MP21205-LC1	1		AG HIGH RSD ON CCV8.
23:54	ZZZZZZ	1		
23:59	ZZZZZZ	1		
00:03	ZZZZZZ	1		
00:08	ZZZZZZ	1		
00:13	MA15773-CCV9	1		
00:18	MA15773-CCB9	1		
00:23	ZZZZZZ	1		

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Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB39747

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP

Date Analyzed: 06/19/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15773

Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
00:28	ZZZZZZ	1		
00:33	ZZZZZZ	1		
00:38	ZZZZZZ	1		
00:43	ZZZZZZ	1		
00:48	ZZZZZZ	1		
00:53	ZZZZZZ	1		
00:57	ZZZZZZ	1		
01:02	ZZZZZZ	1		
01:07	ZZZZZZ	1		
01:12	MA15773-CCV10	1		
01:17	MA15773-CCB10	1		
01:22	ZZZZZZ	1		
01:27	ZZZZZZ	1		
01:32	ZZZZZZ	1		
01:37	ZZZZZZ	1		
01:42	ZZZZZZ	1		
01:47	ZZZZZZ	10		
01:52	ZZZZZZ	5		
01:57	MA15773-CCV11	1		
02:01	MA15773-CCB11	1		
02:06	MA15773-CRIA2	1		
02:11	MA15773-ICSA3	1		
02:16	MA15773-ICSAB3	1		
02:21	MA15773-CCV12	1		

-----> 02:26 MA15773-CCB12 1
Last reportable CCB for job JB39747
Refer to raw data for calibration curve and standards.

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INTERNAL STANDARD SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 Analyst: EAL Run ID: MA15773
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
16:11	MA15773-STD1	4899 R	111580 R	10260 R
16:16	MA15773-STD2	4839	111430	10202
16:20	MA15773-STD3			10327
16:25	MA15773-STD4	4900	110740	10216
16:30	MA15773-ICV1	4840	110570	10152
16:39	MA15773-ICB1	4886	111370	10164
16:45	MA15773-CCV1	4880	112420	10276
16:53	MA15773-CCB1	4886	113160	10259
17:02	MA15773-CRI1	4838	111560	10204
17:08	MA15773-ICSA1	4524	104470	9916
17:13	MA15773-ICSAB1	4466	104050	9813
17:18	MP21193-B1	4815	111880	10257
17:23	MP21193-MB1	4827	111690	10378
17:28	MP21193-S1	4747	109090	10046
17:33	MP21193-S2	4723	110350	10080
17:37	MC21765-2	4791	111210	10276
17:42	MP21193-SD1	4862	112590	10330
17:47	MP21193-B2	4781	110770	10524
17:52	MA15773-CCV2	4845	113020	10292
17:57	MA15773-CCB2	4837	112310	10017
18:01	MP21193-MB2	4845	112680	10407
18:06	MP21193-MB3	4830	112180	10293
18:11	ZZZZZZ	4720	109970	10095
18:16	ZZZZZZ	4729	108470	10586
18:21	ZZZZZZ	4796	111160	10201
18:26	ZZZZZZ	4810	111490	10406
18:31	ZZZZZZ	4621	106890	10188
18:36	ZZZZZZ	5163	120750	11187
18:41	ZZZZZZ	4756	110270	10361
18:46	ZZZZZZ	4638	107490	10104
18:51	MA15773-CCV3	4876	111970	10201
18:55	MA15773-CCB3	4805	110900	10080
19:00	ZZZZZZ	4553	105940	10220

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INTERNAL STANDARD SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 Analyst: EAL Run ID: MA15773
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
19:05	ZZZZZZ	4490	105610	10184
19:10	ZZZZZZ	4669	108950	10400
19:15	ZZZZZZ	4502	105430	10371
19:20	ZZZZZZ	4737	111210	10391
19:25	ZZZZZZ	4436	103570	10053
19:30	ZZZZZZ	4473	105200	10005
19:35	ZZZZZZ	4260	98514	9810
19:40	ZZZZZZ	4942	112720	10190
19:45	ZZZZZZ	4865	111940	10329
19:50	MA15773-CCV4	4867	111970	10239
19:55	MA15773-CCB4	4840	112110	10218
20:00	ZZZZZZ	4755	110220	10176
20:05	MA15773-CRI2	4822	112060	10248
20:10	MA15773-ICSA2	4497	105310	10071
20:15	MA15773-ICSAB2	4463	104160	9921
20:19	MA15773-CCV5	4859	113400	10643
20:24	MA15773-CCB5	4837	111940	10259
20:29	MA15773-CRIA1	4844	111750	10171
20:34	MP21207-B1	4785	111120	10118
20:39	MP21207-MB1	4873	113210	10401
20:44	MP21207-S1	4998	117060	10621
20:48	MP21207-S2	4998	116830	10634
20:53	MC21882-15	5180	120440	11096
20:58	MP21207-SD1	4972	116190	10788
21:03	MP21207-B2	4770	112550	10282
21:08	MP21207-LC1	5168	121200	10965
21:13	MP21207-S3	4871	115650	10779
21:17	MA15773-CCV6	4865	115200	10437
21:22	MA15773-CCB6	4860	114200	10409
21:27	MP21207-S4	4846	114910	10478
21:32	MC21824-1	4871	115710	10662
21:37	JB39747-1	5173	123770	11541
21:42	JB39747-2	4836	117010	10992

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INTERNAL STANDARD SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 Analyst: EAL Run ID: MA15773
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
21:47	ZZZZZZ	4292	105840	10303
21:52	ZZZZZZ	4630	112290	10785
21:57	ZZZZZZ	4373	108010	10484
22:02	ZZZZZZ	4297	106880	10483
22:07	ZZZZZZ	4874	118910	11110
22:12	ZZZZZZ	6743 !a	163380 !a	14810 !a
22:16	MA15773-CCV7	4795	113260	10580
22:21	MA15773-CCB7	4755	112380	10359
22:26	ZZZZZZ	5031	120390	10944
22:31	ZZZZZZ	4997	120730	11037
22:36	ZZZZZZ	4981	118880	10817
22:41	ZZZZZZ	5021	119800	10931
22:45	ZZZZZZ	4956	117140	10788
22:50	ZZZZZZ	5057	119940	10960
22:55	ZZZZZZ	5055	120430	10826
23:00	ZZZZZZ	4982	118570	10753
23:05	ZZZZZZ	5064	119480	10965
23:10	MP21205-B1	4676	111020	10280
23:14	MA15773-CCV8	4751	114380	10315
23:19	MA15773-CCB8	4713	113100	10232
23:24	MP21205-MB1	4697	112560	10382
23:29	MP21205-S1	4316	106830	10331
23:34	MP21205-S2	4271	106390	10210
23:39	MC21756-9	4229	104440	10197
23:44	MP21205-SD1	4493	109130	10148
23:49	MP21205-LC1	5077	121960	11221
23:54	ZZZZZZ	4708	112560	10522
23:59	ZZZZZZ	4821	116900	10854
00:03	ZZZZZZ	4905	118940	10962
00:08	ZZZZZZ	4776	115830	10619
00:13	MA15773-CCV9	4764	116520	10406
00:18	MA15773-CCB9	4754	112790	10212
00:23	ZZZZZZ	4480	109550	10413

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INTERNAL STANDARD SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 Analyst: EAL Run ID: MA15773
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
00:28	ZZZZZZ	4631	114520	10749
00:33	ZZZZZZ	4312	106580	10257
00:38	ZZZZZZ	5240	125140	11524
00:43	ZZZZZZ	5262	125070	11548
00:48	ZZZZZZ	5201	125820	11527
00:53	ZZZZZZ	4338	106530	10389
00:57	ZZZZZZ	4646	115960	10742
01:02	ZZZZZZ	4165	102850	10000
01:07	ZZZZZZ	4625	113330	10432
01:12	MA15773-CCV10	4721	112170	10189
01:17	MA15773-CCB10	4733	111220	10126
01:22	ZZZZZZ	4320	105730	10218
01:27	ZZZZZZ	4873	118950	10965
01:32	ZZZZZZ	4346	107020	10125
01:37	ZZZZZZ	4400	108260	10305
01:42	ZZZZZZ	4367	107950	10291
01:47	ZZZZZZ	4684	111590	10159
01:52	ZZZZZZ	4675	112240	10237
01:57	MA15773-CCV11	4740	113090	10176
02:01	MA15773-CCB11	4724	111960	10160
02:06	MA15773-CRIA2	4746	112190	10189
02:11	MA15773-ICSA3	4377	104570	10140
02:16	MA15773-ICSAB3	4355	105450	9738
02:21	MA15773-CCV12	4756	112680	10130
02:26	MA15773-CCB12	4716	111600	10131

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %

(a) No element reported by this internal standard.

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BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 QC Limits: result < RL Run ID: MA15773 Units: ug/l

Time: Sample ID:	RL	IDL	16:39 ICB1 raw	final	16:53 CCB1 raw	final	17:57 CCB2 raw	final	18:55 CCB3 raw	final
Aluminum	200	17	anr							
Antimony	6.0	1.2	anr							
Arsenic	4.0	1.1	anr							
Barium	50	.43	anr							
Beryllium	4.0	.17	anr							
Boron	100	.47	anr							
Cadmium	4.0	.14	anr							
Calcium	5000	15	anr							
Chromium	10	.5	anr							
Cobalt	50	.15	anr							
Copper	25	.79	anr							
Gold	50	2.3								
Iron	100	4	anr							
Lead	5.0	.76	0.30	<5.0	0.20	<5.0	-0.20	<5.0	0.0	<5.0
Magnesium	5000	53	anr							
Manganese	15	.16	anr							
Molybdenum	100	.25	anr							
Nickel	40	.15	anr							
Palladium	50	2.3								
Platinum	50	5.2								
Potassium	5000	64	anr							
Selenium	10	1.7	anr							
Silicon	100	1.7								
Silver	5.0	.62	anr							
Sodium	5000	23	anr							
Strontium	10	.2								
Thallium	5.0	.67	anr							
Tin	100	.23	anr							
Titanium	50	1.9	anr							
Tungsten	100	7.3								
Vanadium	10	.95	anr							
Zinc	20	.13	anr							
Zirconium	50	2.3								

(*) Outside of QC limits

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BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 QC Limits: result < RL Run ID: MA15773 Units: ug/l

Metal	RL	IDL	19:55		20:24		21:22		22:21	
			CCB4	final	CCB5	final	CCB6	final	CCB7	final
Aluminum	200	17	anr							
Antimony	6.0	1.2	anr							
Arsenic	4.0	1.1	anr							
Barium	50	.43	anr							
Beryllium	4.0	.17	anr							
Boron	100	.47	anr							
Cadmium	4.0	.14	anr							
Calcium	5000	15	anr							
Chromium	10	.5	anr							
Cobalt	50	.15	anr							
Copper	25	.79	anr							
Gold	50	2.3								
Iron	100	4	anr							
Lead	5.0	.76	0.10	<5.0	0.20	<5.0	0.80	<5.0	0.30	<5.0
Magnesium	5000	53	anr							
Manganese	15	.16	anr							
Molybdenum	100	.25	anr							
Nickel	40	.15	anr							
Palladium	50	2.3								
Platinum	50	5.2								
Potassium	5000	64	anr							
Selenium	10	1.7	anr							
Silicon	100	1.7								
Silver	5.0	.62	anr							
Sodium	5000	23	anr							
Strontium	10	.2								
Thallium	5.0	.67	anr							
Tin	100	.23	anr							
Titanium	50	1.9	anr							
Tungsten	100	7.3								
Vanadium	10	.95	anr							
Zinc	20	.13	anr							
Zirconium	50	2.3								

(*) Outside of QC limits

13.1.2
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BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 QC Limits: result < RL Run ID: MA15773 Units: ug/l

Metal	RL	IDL	Time:	23:19	00:18	01:17	02:01			
			Sample ID:	CCB8	CCB9	CCB10	CCB11	raw	final	
Aluminum	200	17	anr							
Antimony	6.0	1.2	anr							
Arsenic	4.0	1.1	anr							
Barium	50	.43	anr							
Beryllium	4.0	.17	anr							
Boron	100	.47	anr							
Cadmium	4.0	.14	anr							
Calcium	5000	15	anr							
Chromium	10	.5	anr							
Cobalt	50	.15	anr							
Copper	25	.79	anr							
Gold	50	2.3								
Iron	100	4	anr							
Lead	5.0	.76	-0.10	<5.0	-0.10	<5.0	0.10	<5.0	0.40	<5.0
Magnesium	5000	53	anr							
Manganese	15	.16	anr							
Molybdenum	100	.25	anr							
Nickel	40	.15	anr							
Palladium	50	2.3								
Platinum	50	5.2								
Potassium	5000	64	anr							
Selenium	10	1.7	anr							
Silicon	100	1.7								
Silver	5.0	.62	anr							
Sodium	5000	23	anr							
Strontium	10	.2								
Thallium	5.0	.67	anr							
Tin	100	.23	anr							
Titanium	50	1.9	anr							
Tungsten	100	7.3								
Vanadium	10	.95	anr							
Zinc	20	.13	anr							
Zirconium	50	2.3								

(*) Outside of QC limits

13.12
13

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 QC Limits: result < RL Run ID: MA15773 Units: ug/l

Metal	RL	IDL	02:26 CCB12 raw	final
Aluminum	200	17	anr	
Antimony	6.0	1.2	anr	
Arsenic	4.0	1.1	anr	
Barium	50	.43	anr	
Beryllium	4.0	.17	anr	
Boron	100	.47	anr	
Cadmium	4.0	.14	anr	
Calcium	5000	15	anr	
Chromium	10	.5	anr	
Cobalt	50	.15	anr	
Copper	25	.79	anr	
Gold	50	2.3		
Iron	100	4	anr	
Lead	5.0	.76	-0.10	<5.0
Magnesium	5000	53	anr	
Manganese	15	.16	anr	
Molybdenum	100	.25	anr	
Nickel	40	.15	anr	
Palladium	50	2.3		
Platinum	50	5.2		
Potassium	5000	64	anr	
Selenium	10	1.7	anr	
Silicon	100	1.7		
Silver	5.0	.62	anr	
Sodium	5000	23	anr	
Strontium	10	.2		
Thallium	5.0	.67	anr	
Tin	100	.23	anr	
Titanium	50	1.9	anr	
Tungsten	100	7.3		
Vanadium	10	.95	anr	
Zinc	20	.13	anr	
Zirconium	50	2.3		

(*) Outside of QC limits

13.1.2
13

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Metal	Sample ID: ICV True	16:30		CCV True	16:45		CCV True	17:52	
		ICV1 Results	% Rec		CCV1 Results	% Rec		CCV2 Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	3000	2910	97.0	2000	1940	97.0	2000	1960	98.0
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin	anr								
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Metal	Sample ID: CCV	18:51		CCV	19:50		CCV	20:19	
		CCV3	Results		CCV4	Results		CCV5	Results
	True		% Rec	True		% Rec	True		% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1960	98.0	2000	1960	98.0	2000	1960	98.0
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin	anr								
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Metal	Sample ID: CCV	21:17 CCV6		22:16 CCV7		23:14 CCV8			
		True	Results % Rec	True	Results % Rec	True	Results % Rec		
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1970	98.5	2000	1990	99.5	2000	2020	101.0
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin	anr								
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Metal	Sample ID: CCV	Time: 00:13		CCV	Time: 01:12		CCV	Time: 01:57	
		CCV9	Results % Rec		CCV10	Results % Rec		CCV11	Results % Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	2010	100.5	2000	2030	101.5	2000	2020	101.0
Magnesium	anr								
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin	anr								
Titanium	anr								
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Metal	Sample ID	Time	Results	% Rec
Aluminum	CCV	02:21		
Antimony	True	CCV12		
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Gold				
Iron				
Lead	2000		2020	101.0
Magnesium				
Manganese				
Molybdenum				
Nickel				
Palladium				
Platinum				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
 QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15773 Units: ug/l

Metal	Time:		17:02		20:05		20:29		02:06		
	Sample ID:	CRI	CRIA	CRI1	% Rec	CRI2	% Rec	CRIA1	% Rec	CRIA2	% Rec
Aluminum	200	200	anr								
Antimony	6.0	10	anr								
Arsenic	4.0	10	anr								
Barium	50	50	anr								
Beryllium	4.0	4.0	anr								
Boron	100	100	anr								
Cadmium	4.0	4.0	anr								
Calcium	5000	5000	anr								
Chromium	10	10	anr								
Cobalt	50	50	anr								
Copper	25	25	anr								
Gold	50	50	anr								
Iron	100	100	anr								
Lead	5.0	10	4.8	96.0	5.3	106.0	10.2	102.0	10.7	107.0	
Magnesium	5000	5000	anr								
Manganese	15	15	anr								
Molybdenum	100	100	anr								
Nickel	40	40	anr								
Palladium	50	50	anr								
Platinum	50	50	anr								
Potassium	5000	5000	anr								
Selenium	10	10	anr								
Silicon	100	100	anr								
Silver	5.0	5.0	anr								
Sodium	5000	5000	anr								
Strontium	10	10	anr								
Thallium	5.0	10	anr								
Tin	100	100	anr								
Titanium	50	50	anr								
Tungsten	100	100	anr								
Vanadium	10	10	anr								
Zinc	20	20	anr								
Zirconium	50	50	anr								

(*) Outside of QC limits

13.14
13

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15773 Units: ug/l

Time:			17:08			17:13			20:10			20:15
Sample ID:	ICSA	ICSAB	ICSAL	% Rec	ICSAB1	% Rec	ICSAB2	% Rec	ICSAB2	% Rec		
Metal	True	True	Results		Results		Results		Results			
Aluminum	500000	500000	508000	101.6	512000	102.4	491000	98.2	505000	101.0		
Antimony		2000	2.0		2000	100.0	1.7		2020	101.0		
Arsenic		2000	-1.4		1950	97.5	-0.30		1940	97.0		
Barium		500	1.7		517	103.4	1.6		512	102.4		
Beryllium		500	-0.10		470	94.0	0.10		468	93.6		
Boron		1000	0.30		941	94.1	0.40		934	93.4		
Cadmium		1000	0.10		983	98.3	0.30		979	97.9		
Calcium	500000	500000	457000	91.4	460000	92.0	447000	89.4	456000	91.2		
Chromium		500	0.40		453	90.6	0.50		448	89.6		
Cobalt		500	-0.10		455	91.0	0.10		456	91.2		
Copper		500	-6.1		460	92.0	-6.1		467	93.4		
Gold		500	0.60		474	94.8	1.2		460	92.0		
Iron	200000	200000	185000	92.5	189000	94.5	181000	90.5	183000	91.5		
Lead		1000	3.0		866	86.6	3.5		875	87.5		
Magnesium	500000	500000	507000	101.4	515000	103.0	503000	100.6	509000	101.8		
Manganese		500	1.2		462	92.4	1.3		462	92.4		
Molybdenum		1000	-2.4		916	91.6	-2.6		918	91.8		
Nickel		1000	-0.60		833	83.3	-0.40		825	82.5		
Palladium		500	-0.30		489	97.8	-2.4		477	95.4		
Platinum		500	-8.4		470	94.0	-13		466	93.2		
Potassium			33.5		54.2		133		155			
Selenium		2000	-1.3		1950	97.5	1.4		1960	98.0		
Silicon		2000	28.7		2030	101.5	31.9		2010	100.5		
Silver		1000	-0.10		1010	101.0	0.0		995	99.5		
Sodium			139		140		402		360			
Strontium		1000	1.0		1000	100.0	1.1		984	98.4		
Thallium		2000	0.20		1740	87.0	0.40		1720	86.0		
Tin		1000	-0.60		915	91.5	-0.70		921	92.1		
Titanium		500	6.7		479	95.8	6.8		476	95.2		
Tungsten		2000	-14		1730	86.5	-18		1700	85.0		
Vanadium		500	-0.60		472	94.4	-0.40		469	93.8		
Zinc		1000	1.0		863	86.3	1.0		859	85.9		
Zirconium		500	4.2		413	82.6	3.4		393	78.6*		

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15773 Units: ug/l

Time:			02:11			02:16
Sample ID:	ICSA	ICSAB	ICSA3		ICSAB3	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	479000	95.8	495000	99.0
Antimony		2000	0.60		2080	104.0
Arsenic		2000	0.40		1940	97.0
Barium		500	1.3		518	103.6
Beryllium		500	-0.10		471	94.2
Boron		1000	0.60		940	94.0
Cadmium		1000	0.60		991	99.1
Calcium	500000	500000	445000	89.0	460000	92.0
Chromium		500	0.20		437	87.4
Cobalt		500	0.70		466	93.2
Copper		500	-6.7		467	93.4
Gold		500	1.1		447	89.4
Iron	200000	200000	174000	87.0	181000	90.5
Lead		1000	-0.30		906	90.6
Magnesium	500000	500000	493000	98.6	513000	102.6
Manganese		500	1.3		459	91.8
Molybdenum		1000	-2.4		938	93.8
Nickel		1000	-0.40		831	83.1
Palladium		500	-8.0		458	91.6
Platinum		500	-20		455	91.0
Potassium			74.5		80.6	
Selenium		2000	-2.4		2020	101.0
Silicon		2000	31.2		2020	101.0
Silver		1000	0.50		968	96.8
Sodium			156		150	
Strontium		1000	0.60		970	97.0
Thallium		2000	1.4		1720	86.0
Tin		1000	-1.0		950	95.0
Titanium		500	7.0		468	93.6
Tungsten		2000	-16		1700	85.0
Vanadium		500	-0.20		460	92.0
Zinc		1000	0.80		871	87.1
Zirconium		500	3.3		380	76.0*

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICESA and ICSAB Standards

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SA061913M2.ICP Date Analyzed: 06/19/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15773 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/19/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	20	1.7	3.6		
Antimony	1.0	.12	.15		
Arsenic	1.0	.11	.21		
Barium	5.0	.032	.073		
Beryllium	0.40	.01	.024		
Boron	10	.047	.11		
Cadmium	0.40	.014	.042		
Calcium	500	1.5	6.3		
Chromium	1.0	.05	.095		
Cobalt	5.0	.015	.047		
Copper	2.5	.079	.56		
Gold	5.0	.23	.43		
Iron	10	.4	.87		
Lead	1.0	.076	.17	-0.010	<1.0
Magnesium	500	5.3	5.1		
Manganese	1.5	.016	.04		
Molybdenum	10	.025	.07		
Nickel	4.0	.015	.044		
Palladium	5.0	.23	.64		
Platinum	5.0	.52	1.5		
Potassium	500	6.4	8.6		
Selenium	1.0	.17	.35		
Silicon	10	.17	3.3		
Silver	0.50	.062	.13		
Sodium	500	2.3	3.3		
Strontium	1.0	.02	.03		
Thallium	1.0	.067	.13		
Tin	10	.023	.14		
Titanium	5.0	.19	.14		
Tungsten	10	.73	.94		
Vanadium	1.0	.095	.13		
Zinc	2.0	.013	.16		
Zirconium	5.0	.23	.088		

13.21
13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

13.2.1
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 06/19/13

Metal	MC21882-15 Original MS	SpikeLot MPICP	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Gold				
Iron				
Lead	3.0	89.8	96.5	89.9 75-125
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Palladium				
Platinum				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin	anr			
Titanium	anr			
Tungsten				
Vanadium				
Zinc	anr			
Zirconium				

13.22
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 06/19/13

Metal	MC21882-15 Original MSD	SpikeLot MPICP	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron	anr				
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Gold					
Iron					
Lead	3.0	89.5	96.5	89.6	0.3 20
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	anr				
Palladium					
Platinum					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium					
Strontium					
Thallium					
Tin	anr				
Titanium	anr				
Tungsten					
Vanadium					
Zinc	anr				
Zirconium					

13.22
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB39747

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207

Methods: SW846 6010C

Matrix Type: SOLID

Units: mg/kg

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 06/19/13 06/19/13

Metal	BSP Result	Spikelot MPICP	% Rec	QC Limits	BSD Result	Spikelot MPICP	% Rec	BSD RPD	QC Limit
Aluminum									
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron	anr								
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Gold									
Iron									
Lead	96.3	100	96.3	80-120	97.2	100	97.2	0.9	20
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	anr								
Palladium									
Platinum									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Thallium									
Tin	anr								
Titanium	anr								
Tungsten									
Vanadium									
Zinc	anr								
Zirconium									

13.23
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB39747

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207

Methods: SW846 6010C

Matrix Type: SOLID

Units: mg/kg

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

13.2.3

13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 06/19/13

Metal	LCS Result	Spikelot MPLCS80	% Rec	QC Limits
Aluminum				
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron	anr			
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Gold				
Iron				
Lead	115	115	100.0	82-119
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Palladium				
Platinum				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin	anr			
Titanium	anr			
Tungsten				
Vanadium				
Zinc	anr			
Zirconium				

13.2.3
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB39747

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207

Methods: SW846 6010C

Matrix Type: SOLID

Units: mg/kg

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

13.2.3

13

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date: 06/19/13

Metal	MC21882-15 Original SDL 1:5	%DIF	QC Limits
Aluminum			
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Boron	anr		
Cadmium	anr		
Calcium			
Chromium	anr		
Cobalt			
Copper	anr		
Gold			
Iron			
Lead	31.5	35.3	12.1 (a) 0-10
Magnesium			
Manganese			
Molybdenum	anr		
Nickel	anr		
Palladium			
Platinum			
Potassium			
Selenium	anr		
Silicon			
Silver	anr		
Sodium			
Strontium			
Thallium			
Tin	anr		
Titanium	anr		
Tungsten			
Vanadium			
Zinc	anr		
Zirconium			

13.24
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

13.2.4

13

POST DIGESTATE SPIKE SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date:

06/19/13

Metal	Sample ml	Final ml	MC21882-15 Raw	PS Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Boron										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Gold										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Palladium										
Platinum										
Potassium										
Selenium										
Silicon										
Silver										
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										
Zinc										
Zirconium										

13.25
13

POST DIGESTATE SPIKE SUMMARY

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

POST DIGESTATE SPIKE SUMMARY

Login Number: JB39747
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date:

06/19/13

Metal	Sample ml	Final ml	MC21824-1 Raw	PS Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Boron										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Gold										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Palladium										
Platinum										
Potassium										
Selenium										
Silicon										
Silver										
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										
Zinc										
Zirconium										

13.25
13

POST DIGESTATE SPIKE SUMMARY

Login Number: JB39747
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21207
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP21207: JB39747-1, JB39747-2

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB39747
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: JB39747-1 Analyzed: 19-JUN-13 by HS Method: SM21 2540 B MOD.
ClientID: AOI-5_MW-480_0-2'_61413

Wet Weight (Total)	36.142	g
Tare Weight	26.884	g
Dry Weight (Total)	34.963	g
Solids, Percent	87.3	%

Sample: JB39747-2 Analyzed: 19-JUN-13 by HS Method: SM21 2540 B MOD.
ClientID: AOI-5_MW-480_2-4'_61413

Wet Weight (Total)	34.985	g
Tare Weight	26.195	g
Dry Weight (Total)	31.518	g
Solids, Percent	60.6	%

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB39747
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: JB39747-1 Analyzed: 19-JUN-13 by AMA Method: SM21 2540 B MOD.
ClientID: AOI-5_MW-480_0-2'_61413

Wet Weight (Total)	36.142	g
Tare Weight	26.884	g
Dry Weight (Total)	34.963	g
Solids, Percent	87.3	%

Sample: JB39747-2 Analyzed: 19-JUN-13 by AMA Method: SM21 2540 B MOD.
ClientID: AOI-5_MW-480_2-4'_61413

Wet Weight (Total)	34.985	g
Tare Weight	26.195	g
Dry Weight (Total)	31.518	g
Solids, Percent	60.6	%